OBS/GYNE

Version 5.3

Corrected, Updated, Lighter

PLAB 1 Keys is for PLAB-1 and UKMLA-AKT (Based on the New MLA Content-Map)

With the Most Recent Recalls and the UK Guidelines

ATTENTION: This file will be updated online on our website frequently!

(example: Version 2.6 is more recent than Version 2.5, and so on)

Key 1	**Notes and Scenarios Collections on Contraception** ***More details on each of the following is explained in the coming keys.*** ***You will need to go over this entire Key several times to absorb it.***

• **If < 20 YO** → **Don't** prescribe IUS (**Mirena®**) or **Depo-Provera** (IM Medroxyprogesterone acetate).

Depo-Provera → Risk for *osteoporosis* in such a young age.

• Many females who recently started on **Depo-Provera (Progesterone-only-injections)** or Mirena tend to initially have **bleeding more days than usual** and **vaginal spotting between cycles**.

Most females become amenorrheic after 1 year of use.

Therefore → **Reassure and advice the patient to come back if these unscheduled bleedings become problematic**.

What if bleeding becomes problematic?

→ COCP for 3 months (While still on Depo-Provera)

Or: Mefenamic acid or Tranexamic acid for 5 days.

• IUS (**Mirena®**) and **Depo-Provera are not recommended if ♀ < 20 YO**

• **Nexplanon®** "**Etonogestrel implant**" is **safe** **< 20 YO**.

• **COCP** and **POP** are also **safe** **< 20 YO**.

• In females with some **learning difficulties**

→ **Do not prescribe Pills** (COCP, POP) as they may forget taking the pills.

◙ **Some important contraindications for the use of COCP:**

√ Smoking.

√ Obesity (BMI > 30 Kg/m^2).

√ Hx of thromboembolism.

√ Learning difficulties (as they may forget to take the pills).

√ Post-partum (if breastfeeding: CI for 6 months) (If not: CI for 6 weeks).

√ Migraine with aura.

√ HTN (even if well-controlled HTN).

• Intrauterine contraceptive systems (**IUS**) (eg, Merina) and **Progesterone-only implants** (eg, Nexplanon) are used for **long-term contraception** and thus should be avoided if a woman has intentions and plans to get pregnant in the near future (eg, within 6 months).

• After giving a birth, **COCP** is **contraindicated** in **breastfeeding** ♀ (for 6 months) and in **non-breastfeeding** ♀ (for 6 weeks).

• **After Delivery:**

- A breastfeeding ♀ can start taking COCP after **6 months** of delivery.
- A non-breastfeeding ♀ can start COCP after **6 weeks** of delivery.

• **Progesterone only pills (POP)** are **safe in breastfeeding**, they are given orally; **not injections**, and they are **short-term** birth-control methods.

• **No** contraceptive method is required **post-partum** for **21 days** after delivery.

• **Depo-Provera** (Medroxyprogesterone acetate) is **IM injection** given once every 3 months. It is **contraindicated** in females **< 20 YO**.

However, it is **first-line** in females with **SCA** and **Menorrhagia**.

√ **Menorrhagia** = Heavy menstruation | √ **Dysmenorrhea** = Painful menstruation |

√ **Metrorrhagia** = Irregular menses

◙ **In young ♀, Not sexually active** (i.e., she doesn't require any contraception as she is sexually inactive)

♦ **Menorrhagia only** (Heavy menstruation) → First line is **Mirena**, unless if pregnancy is wished soon or she is < 20 YO, then → **Tranexamic acid**.

♦ **Menorrhagia + Dysmenorrhea** → **Mefenamic acid**.

♦ **Menorrhagia + Irregular menses + Does not want to get pregnant** → **COCPs**.

♦ **Metrorrhagia (irregular menses) ± Menorrhagia/ Dysmenorrhea** → **COCPs**.

√ Once there is dysmenorrhea (painful menstruation) → Mefenamic acid

√ Once there are Metrorrhagia (irregular menses) → COCPs

√ Menorrhagia only → Mirena (first-line) unless if she is < 20 YO or she wishes to be pregnant in the near future, then → Tranexamic acid

√ Menorrhagia in a female with SCD → Depo-Provera (IM progesterone).

◙ **In a sexually active ♀ (she requires contraception) + Menorrhagia/ ± Dysmenorrhea/ or Fibroids NOT distorting the uterine cavity**

♦ **The first-line → Mirena (IUS) = Levonorgestrel Intrauterine System**

Q) What if Mirena is Contraindicated (e.g., the ♀ < 20 YO or no long contraception is wished)?

If **No** contraindications to COCP (e.g. smoking, obesity, Hx of thromboembolism) → **COCP** (or POP or implants).

- If there is uterine cavity distortion by fibroids → **implants** (e.g. **Nexplanon**)

- If ♀ with **SCD** "Sickle cell disease" and **Menorrhagia** → **Depo-Provera IM**.

◙ **Emergency Contraception** (had unprotected sex and wants contraception now)

√ presented within **72 hours** (within **3 days**) of the unprotected sex → **Levonelle pill**.

√ Presented within **120 hours** (**5 days**) of the unprotected sex

→ **IUD "Copper"** or **EllaOne pill**.

◙ The contraception that **reduces the risk of Cervical Cancer**

→ **Condoms**

Using condoms reduces the risk of HPV infections → thus, reduces the risk of cervical cancer.

Scenarios and Examples on Contraception

Example (1),

25 YO female is now 22 days after delivery and wishes a contraceptive method that does not include needles. She would like to get pregnant after 6 months.

→ **Progesterone-only pills**.

√ IUS and Implants are for long-term contraception.

√ COCPs are contraindicated after delivery for 6 months in breastfeeding ♀.

√ Depo-Provera is IM injection (and she doesn't want injections).

Example (2),

18 YO with some learning difficulties using condoms and want an alternative contraceptive method.

→ **Nexplanon** (implants)

√ COCP is safe < 20 YO if no contraindications. However, she has learning difficulties and thus may forget to take the pills.

√ < 20 YO: IUS (Mirena) and Depo-Provera are better avoided (UKMEC2).

Example (3),

A 40 YO smoker and overweight female presents with heavy periods (Menorrhagia). She would like a long-term contraceptive method.

→ **IUS (e.g. Mirena = levonorgestrel intrauterine system).**

• Remember, in a sexually active ♀ (requires contraception) with menorrhagia/ dysmenorrhea/ or fibroids not distorting the uterine cavity

The first line ⟶ Mirena (IUS) = Levonorgestrel Intrauterine System

• Furthermore, this lady has contraindications to COCP (Obesity, Smoking).

Example (4),

After initiating Depo-Provera 2 months ago, a female presents complaining of unscheduled bleeding.

→ **Reassure and advice to return if bleeding become problematic**.

The majority of females who start Depo-Provera (Progesterone-only IM injections taken once every 3 months "12 weeks") tend to have intermenstrual spotting. This usually settles after a year of Depo-Provera use.

Example (5),

A 16 YO female who is not sexually active presents complaining of menorrhagia (heavy bleeding), Dysmenorrhea (Painful cycles) and Irregular cycles.

→ **COCP**.

◙ **In young ♀, Not sexually active (doesn't requires contraception)**

♦ Menorrhagia only (Heavy menstruation) ⟶ Tranexamic acid

♦ Menorrhagia + Dysmenorrhea ⟶ Mefenamic acid.

♦ Metrorrhagia (irregular menses) ± Menorrhagia/ Dysmenorrhea ⟶ COCP.

Example (6),

A 31 YO lady, known case of sickle cell disease, presents complaining of heavy menstrual bleeding (menorrhagia). She is not sexually active and has no plans for children in the near future. The most appropriate Rx:

→ **Depot medroxyprogesterone acetate (DMPA)** = IM Depo-Provera.

Example (7),

A 39 YO woman who has completed her family wants a long-term contraception. She has extensive fibroids that distort her uterine cavity.

→ **Nexplanon** (**progesterone-only subdermal implants**,

(they are replaceable every 3 years)

If this exact female does not have fibroids or the fibroids are small

→ IUS (Mirena).

Example (8),

A 16 YO fit and healthy female presents complaining of severely painful menstrual periods. Her cycles are regular at 28 days. She denies being sexually active.

→ **Mefenamic acid**.

◙ In young, non-sexually active females:

√ Once dysmenorrhea (painful cycles) → Mefenamic acid (NSAIDs)

√ Once irregular menses → COCP

√ Menorrhagia only → Tranexamic acid

Example (9),

A 33 YO female with HTN (controlled with ACE inhibitor ramipril), non-smoker. The <u>least appropriate</u> contraceptive method for her is:

→ **COCP**.

HTN (even if well controlled) is a contraindication for COCPs.

◙ **Some important contraindication for the use of COCP:**

Smoker or ex-smoker ▌Obesity (BMI > 30 kg/m²) ▌Hx of thromboembolism ▌learning difficulties ▌Post-partum (if breastfeeding → CI for 6 months) (If not → 6 weeks) ▌Migraine with aura ▌HTN (even if well controlled)

Example (10),

A 31 YO female wants a reversible contraceptive method. She had C-section one year ago. She also complains of menorrhagia and dysmenorrhea.

→ **Mirena (levonorgestrel intrauterine system).**

◙ Note that "**reversible**" ***doesn't*** mean short-term!

◙ C-section is not a contraindication for Mirena!

◙ In sexually active ♀ (requires contraception) + menorrhagia/ Dysmenorrhea/ or fibroids not distorting the uterine cavity

√ The first line ⟶ Mirena (IUS) = Levonorgestrel Intrauterine System

(***See above***).

Example (11),

A 44 YO female presents asking for contraception advice. She has completed her family and needs no more children. US has incidentally revealed multiple small submucosal fibroids. She is asymptomatic.

The most appropriate contraceptive advice → **Mirena (IUS)**.

Again, small fibroids that are not distorting uterine cavity along with the need of contraception are better manged using Mirena. It would provide contraception as well as could shrink the size of uterus.

Key 2

Quick Important Collections

More details on each of the following is explained in the coming keys.

◙ **Lower abdominal pain** (usually unilateral) + **Recent Amenorrhea** (6-8 weeks) ± Vaginal spotting ± Cervical excitation

→ **Ectopic Pregnancy**.

Vaginal US → empty uterus

For the management, before jumping into laparoscopy:

√ If the patient is stable → request beta-hCG.

• If B-hCG is > 1400 → LaparoScopy. (ectopic pregnancy)

• If < 1400 → wait, observe and repeat vaginal US later. (it might be a normal pregnancy but the fetus is so tiny to be observed by US now).

√ If the patient is unstable from the start (e.g. SBP <90) → LaparotOmy.

◙ A pregnant with Hx of Caesarean Section develops profuse vaginal bleeding + Severe Abdominal Pain + Going into Shock (Hypotension and Tachycardia).

→ **Uterine rupture**.

◙ In the late weeks of pregnancy, painless vaginal bleeding

→ suspect **placenta previa** (do Transvaginal US).

◙ In the late weeks of pregnancy, painful vaginal bleeding (constant abd pain), Tender, hard abdomen

→ suspect **placenta abruption** (do CTG)

◙ A pregnant lady in her third trimester presents with tachycardia ± fever + Hx of PROM ± Vaginal discharge (often offensive and yellow)

→ **suspect Chorioamnionitis**.

◙ Lower abdominal pain, Fever, Deep dyspareunia, Dysuria, menstrual irregularities, Vaginal or cervical discharge, Cervical excitation

→ **PID (Pelvic Inflammatory Disease)**

◙ Dyspareunia ± dysuria + frequency in > 51 YO

→ suspect **Atrophic vaginitis** (Give topical estrogen)

◙ Dyspareunia ± dysuria, frequency + Hot flushes + Night sweats in > 51 YO

→ suspect **Postmenopausal syndrome** (Give HRT: Hormonal Replacement).

If she is a smoker → **Transdermal** HRT instead of oral HRT (safer).

◙ 2ry amenorrhea after chemotherapy

→ suspect **Premature ovarian failure**.

◙ painless vaginal bleeding and placenta is high (ie, not placenta previa)

→ suspect **cervical ectropion**.

◙ For any female > 51 YO presents with Postmenopausal vaginal bleeding (spotting)

√ **Suspect** → **Endometrial Carcinoma**

(Request **initially** **transvaginal ultrasound** to check endometrial thickness.

If thick → Hysteroscopy + Biopsy).

However, if the question asks about the (**most likely Dx**), **atrophic vaginitis** and vulvovaginal atrophy are the commonest causes of postmenopausal bleeding. However, **the most worrisome diagnosis** that need investigation by US ± hysteroscopy and biopsy is endometrial carcinoma. This is why our next step would always be transvaginal US to R/O endometrial carcinoma.

◙ ♀ in child-bearing age, Chronic pelvic pain, Dysmenorrhoea, Deep dyspareunia ± dysuria, dyschezia

→ Suspect **Endometriosis**

(give NSAIDs and Paracetamol → a trial of COCP → **Laparoscopy** "definitive").

◙ **lower abdominal pain** and **tenderness** with **High Fever** + **NO DISCHARGE**.
Additional hints → (Sexually active and doesn't use barriers).

→ **Tubo-ovarian abscess** (perform Pelvic US).

	SUDDEN severe unilateral iliac fossa pain + Nausea + Vomiting ± Tender mobile mass → **Ovarian Torsion** (Refer her to Gynaecology to take her to the theatre!) ◙ African + Bloating + heavy regular periods + enlarged uterus → suspect **fibroids** (do transvaginal US) ◙ Inability to conceive (infertility) + Obesity + Acne + ↑ LH → **Polycystic ovarian syndrome** PCOS (request pelvis ultrasound) (Other features: ↑ insulin "acanthosis nigricans", ↑ androgens, menstrual irregularities: amenorrhea/ oligomenorrhea). ◙ Chronic pelvic pain, **worsens by standing**, worsens premenstrually ± Post-coital ache (deep dyspareunia). → **Pelvic congestion syndrome** (it is non-organic; thus, laparoscopy is unremarkable) ◙ Primary amenorrhea + Cyclical pain ± mass at lower abdomen → **Hematometra**. (Accumulation of blood within uterus).
Key 3	**Chicken Pox Exposure (Contact) in Pregnancy/ and Immunocompromised patients**

• When to give Varicella-Zoster Immunoglobulin (VZIG)?

Almost never used now (not recommended after the newest 2022 update).

• When to give oral Acyclovir? In the following cases:

1 Immunocompromised patients **who develop** Chicken Pox rash.

2 Pregnant ♀ **who develop** Chicken Pox rash. (If severe rash → IV aciclovir).

3 Immunocompromised patients **who are exposed (get in contact with) a person with chicken pox but in 2 conditions:**

1) If the exposure happened within the infectivity period (ie, 2 days before the appearance of the rash on the person up until 5 days after rash appearance).

2) If their immunity to varicella is unknown or negative. Ie, if their serology for varicella zoster immunity is negative. (If it is negative, this means they are not immune to chicken pox).

4 Pregnant ♀ **who get in contact with a person with chicken pox but in 2 conditions:**

1) If the contact happened within the infectivity period (ie, 2 days before the appearance of the rash on the person up until 5 days after rash appearance).

2) If their immunity to varicella is unknown or negative. Ie, if they have not had varicella (chicken pox) before, or their serology for varicella zoster is negative. (If it is negative, this means they are not immune to chicken pox).

Notes:

- Oral Aciclovir is effective if given up to 14 days after contact.

- The infectious period of Varicella Zoster is 2 days before rash appearance till 5 days after rash or when vesicles dried out and crusted.
- Incubation period of VZ can be up to 21 days after exposure.
- In chicken pox, if there is superadded infection (eg, indicated by vesicular discharge and high fever) → Give antibiotics.

The Steps:

Pregnant women or Immunocompromised Patients Exposed (came in contact with) a Person who Has Chicken Pox + There is no rash appeared on them yet:

[Step 1]: Check the Time of Exposure:

Check if the exposure (contact) occurred within the **infectious period** (2 days before rash till 5 days after the rash appearance on the person who she got in contact with). We mean the rash appearance on the contact, not the pregnant or the immunocompromised. These two if the rash appeared on them, we directly start oral aciclovir (or IV aciclovir if severe).

- If yes, the exposure was within the infectious period → go for step 2.

- If no, the exposure was **not** within the infectious period → Reassure.

[Step 2]: Checking Immunity to Varicella Zoster:

Perform **serum antibodies for varicella** zoster (this step is omitted if the pregnant woman has had chicken pox in the past, she is immune → reassure).

TAKE CARE, in the immunocompromised people (eg, Chemotherapy, DM, Chronic corticosteroids, Cancer, heavy smokers), we perform serology for varicella immunity REGARDLESS of chicken pox history, ie, even if they had chicken pox in the past, we still perform VZ serology.

On the other hand, in the exposed pregnant, if there was a history of chicken pox, reassure, if no or unsure → perform VZ serology.

[Step 3]: Decide

- If within infectious period + VZ serology is -ve (not immune) → oral aciclovir.

- If the serology is +ve (VZ antibodies detected) (immune) → Reassure.

Note:

• If a pregnant woman has already developed a classic chicken pox (itchy papules then widespread vesicles), there is no need to check serum varicella IgG antibody as she has already developed chicken pox

→ Give oral aciclovir or (IV aciclovir if severe chicken pox).

• If aciclovir is not among the options, pick → Amit to hospital (so she can receive IV aciclovir).

Example 1,

A pregnant in the 2nd trimester was in significant contact with a child with chickenpox 7 days ago. The child developed chicken pox rash the following day after he met her. She has never had Varicella zoster infection. A stored blood sample is tested negative (not detected antibodies) for varicella zoster virus IgG. Now, she has no rash. What is the most appropriate management?

The best management → **Oral Acyclovir.**

- **Was the exposure within the infectious period?**

Yes, he developed the rash the following day after meeting her, this means he was infectious (2 days before rash until 5 days after rash).

- **Is she immune to VZ?**

No, she has no history of chicken pox + Her serology for VZ is negative

→ Give oral aciclovir.

If any of the above 2 points was a (NO), → *Reassure*.

In the past, the answer to this question was to give varicella zoster immunoglobulin (VZIG). This has changed in 2022.

Now, for pregnant women who get in contact with a person with chickenpox, we break it down:

If the contact was within the period of infectivity (ie, 2 days before rash appearance up until 5 days after the rash appearance in the contact) and the immunity status to VZ is negative, → Give aciclovir.

More Elaboration:

• If she has never had Chicken pox (she is not immune to it) or if the immunity status is unknown, next step → **Check serum Varicella zoster Ab (IgG).**

→ **If +ve (immune)** → **Reassure** (as she is immune).

→ **If -ve (not immune)** → Give **Oral Aciclovir**.

• Aciclovir is effective if given within 14 days after exposure.

• If she develops **rash** → Give **oral Acyclovir** within 24 hours (IV if severe).

• If the serum varicella zoster virus IgG had come back **Positive** (**immune**)

→ the answer would have been: **Reassure**.

Example 2,

What if she was in contact with someone 8 days ago. And after these 8 days have passed, he developed chickenpox rash?

→ **Reassure**

(The infective period of chickenpox is 2 days before the appearance of the rash up until 5 days after rash appearance. Here, 8 days have passed and then he developed the rash. So, when she was in contact with him, he wasn't infectious).

Example 3,

A 31-year-old pregnant woman in her 36 gestation developed red itchy papules on her back, face and trunk. Over a period of 1 day, these papules turned into vesicles that are widespread. 2 days before the rash appeared, she had body aches, fever, and headache (prodromal symptoms). Her body temperature is 39.1 degrees. What is the most appropriate action?

→ Give oral aciclovir (or IV aciclovir if severe).

If these are not in the options → Admission into the hospital.

She already has chicken pox, no reason for chicken serum varicella IgG antibodies. Treat.

Example 4,

If a person develops chicken pox in a maternity hospital

→ Offer oral aciclovir to all pregnant women who came in contact with the person and have a **negative** varicella zoster virus antibody level (not immune).

Key 4

◙ **Causes of Primary Post-Partum Hemorrhage (1ry PPH) → 4 Ts:**

√ [**T**one]: Uterine Atony "Atonic Uterus" (The most common cause).

√ [**T**rauma]: Lacerations, incisions, uterine rupture.

√ [**T**hrombin]: Coagulopathy.

√ [**T**issues]: Retained products of conception.

Example 1,

Prolonged (Protracted) labour + Uterus is **still palpable** above the umbilicus after delivery with postpartum hemorrhage.

The likely cause of postpartum hemorrhage → **Atonic Uterus**.

Rx → **Uterine massage** + Oxytocin (Uterotonic agent)

Example 2,

A primiparous diabetic Asian lady has just delivered a 4.5 Kg baby. The delivery was done by the aid of forceps. The placenta was removed with continuous cord traction and her uterus is well contracted. However, she continues to bleed excessively.

The likely cause of postpartum hemorrhage → **Cervical/ Vaginal Trauma**.

The most common cause of postpartum hemorrhage in general is Uterine Atony. However, here, the uterus is well contracted.

	Big baby in a Diabetic mother are RFs of tear/ trauma at delivery. --- ***Example 3,*** Prolonged labour + Uterus is **felt boggy and relaxed** above the umbilicus after delivery with postpartum hemorrhage. The next immediate step in management → **Uterine massage**. (Uterine atony).
Key 5	• **Intrauterine contraceptive systems** (e.g. **Mirena**) and **Progesterone-only implants** are used for **long-term contraception** and thus should be avoided if a ♀ intends to get pregnant in the near future (e.g. after 6 months). • After delivery, **COCP** is **contraindicated** in **breastfeeding** ♀ (for 6 months) and **non-breastfeeding** ♀ (for 6 weeks). • After Delivery: - A breastfeeding ♀ can start taking COCP after 6 months. - A non-breastfeeding ♀ can start COCP after 6 weeks.

• Note, **No** Contraceptive method is required post-partum **for 21 days** after delivery.

• IUS can be used within 48 hours of delivery or after 4 weeks (28 days) of delivery (for fear of uterine perforation 2-28 days after birth). However, it should not be used if a woman intends to get pregnant in the near future as it provides long term contraception.

• **Depo-Provera** (**Medroxyprogesterone acetate**) is IM injection given once every 3 months.

• **Progesterone only pills** are **safe** in **breastfeeding**, not injections, and short-term birth-control methods.

Example,

21-day post-partum ♀ desires not long-term contraception (wants to get pregnant after 6 months) and prefers no injections. She is breastfeeding.

The most appropriate → **Progesterone-only pill**.

♦ **COCP** is contraindicated after delivery in **breastfeeding** mothers until **6 months** of delivery.

♦ **Depo-Provera** "Medroxyprogesterone acetate" is IM **injection** (given deep in gluteal or deltoid muscle once every 3 months). She does not want injections.

	♦ **Intrauterine system** and **Progesterone-only implants** are not suitable here as they provide **prolonged birth-control** while she wants to get pregnant after 6 months. ♦ **Progesterone only pills** are safe in breastfeeding, not injections, and short-term birth-control methods.
Key 6	**For any female in childbearing age presenting with <u>abdominal pain</u>** → Always check **Urine Pregnancy Test** This is because of the fear of Ectopic pregnancy as "***ruptured ectopic pregnancy is life-threatening***"! --- **Ectopic Pregnancy features:** √ Lower abdominal pain and tenderness (could be unilateral). "The first symptom" √ A missed period (recent amenorrhea) = no menstruation for 6-8 weeks from the beginning of the last period. √ Vaginal bleeding. √ Shoulder tip pain "due to peritoneal bleeding" + Peritonism [Indicate ectopic tubal rupture]

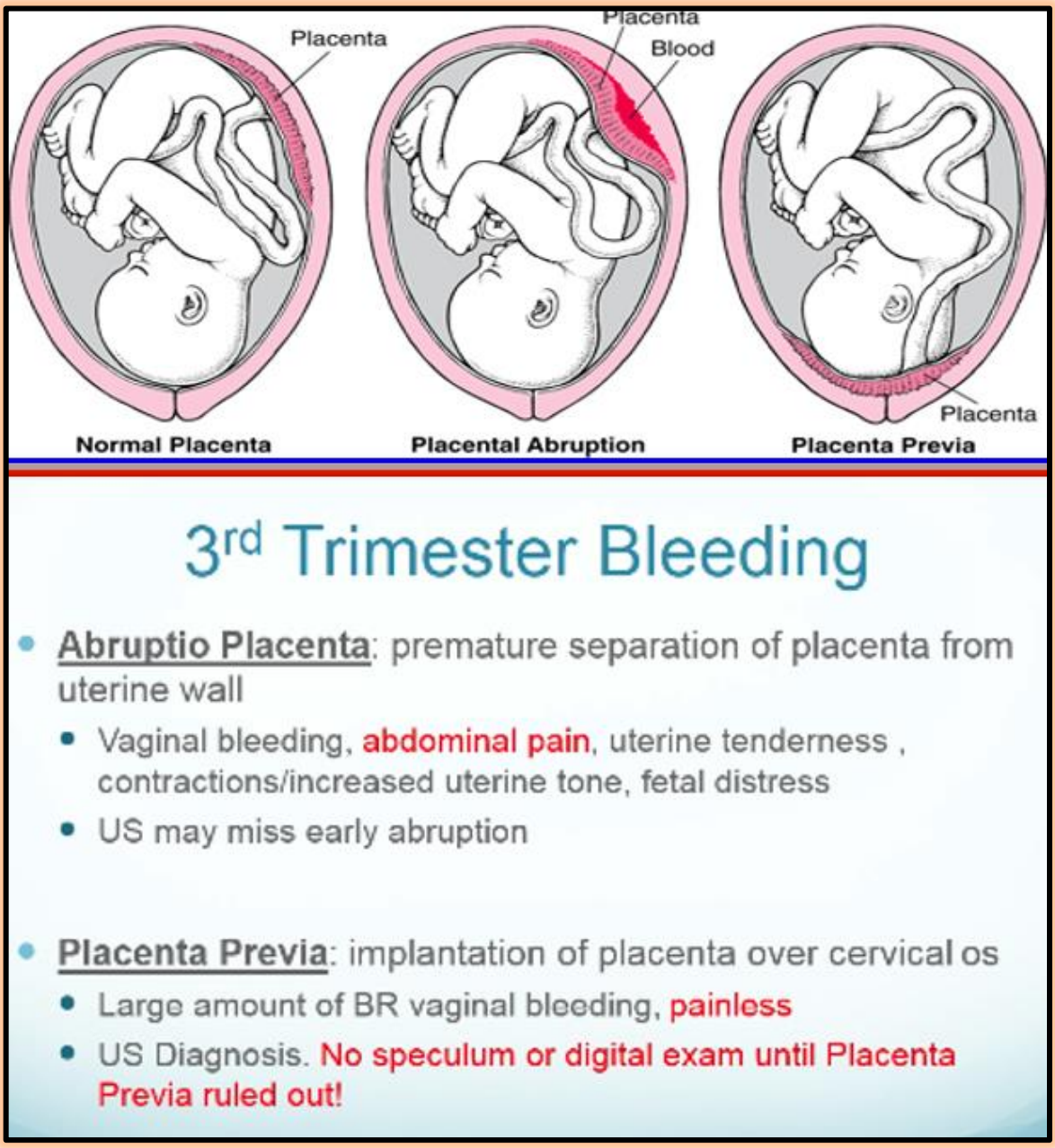
	√ Cervical motion tenderness "Cervical Excitation". ◙ **The initial Investigation** → Urine pregnancy test ◙ **If +ve** → Transvaginal Ultrasound (to look for intrauterine pregnancy) ◙ **If U/S shows empty uterus**, we have 2 paths: ♦ **If the patient is hemodynamically "stable"** → **Check Human chorionic gonadotropin (b-hCG)** - If b-hCG **< 1400** → **Wait and Observe** (unlikely ectopic pregnancy). The fetus may be so small to be observed by US. - If b-hCG **> 1400** → **Proceed to Laparoscopy** (confirmed ectopic pregnancy) *(**Important note**: if hCG is not that high, and -repeats hCG after 48 hrs first- is among the options, and the patient is stable, pick it. As it might be a tubal miscarriage that needs no Rx. If it is tubal miscarriage, the hCG will be falling).* ♦ **If the patient is hemodynamically "unstable"** (e.g., Hypotensive SBP < 90) → **Urgent Laparotomy (Open Salpingectomy or Salpingostomy)**
Key 7	A pregnant ♀ in the 38th gestation with Hx of Caesarean Section develops profuse vaginal bleeding + Severe Abdominal Pain + Going into Shock (Hypotension and Tachycardia). CTG (Cardiotocography) shows distressed fetus "Reduced Variability and Late decelerations). The likely Dx → **Ruptured uterus**

	The Rx → **Urgent Laparotomy** (to deliver the fetus and to repair the uterus). ◙ **RFx of Uterine rupture:** √ Previous CS or uterine surgery (it weakens the uterus). √ Excessive oxytocin (Uterotonic agents) √ Obstructed labour that is not recognised. Remember, ♦ **Placenta previa → PAINLESS vaginal bleeding.** ♦ **Placental abruption → painful.** ♦ **Uterine rupture → painful.**
Key 8	In suspected **placental abruption** (Severe abdominal pain + Vaginal bleeding in "the 3rd trimester" ± Fetal distress) ◙ Firstly, perform → CTG **(Cardiotocography)** (Not US)! ♦ If it shows **fetal distress** → **Urgent C-Section**. ♦ If it is **normal** → Perform **vaginal ultrasound** (to R/O placenta previa). ***Note, ultrasound has minimal rule in placental abruption (clinically diagnosis) but it is important in placenta previa.***

What if CTG is not among the options?

→ Pick **Ultrasound** "to R/O Placenta Previa"

Important, never perform speculum or digital examination until placenta previa is ruled out (by Ultrasound).



	In Summary, √ **Placenta abruption** → initially → **CTG "Cardiotocography"** √ **Placenta Previa** → Initially → **Ultrasound (Preferably Transvaginal US)**
Key 9	◙ **Postmenopausal symptoms** (e.g. **hot flushes**, **night sweats, Irritability, Vaginal Dryness, Dyspareunia)** ♣ If **there is uterus** → **Combined Hormone Replacement Therapy (HRT) with estrogen and progesterone**. Another possible answer → **Transdermal Estradiol and Progesterone patches** If she is a smoker → **Transdermal** HRT instead of oral HRT (safer). Transdermal HRT has a lower risk for thromboembolic events and stroke compared to oral. Thus, it is a safer option particularly if there is a risk factor eg, smoking. ♣ If **No uterus** (e.g. Hx of hysterectomy) or if there is **IUS in place** → **Oestrogen-only Hormone Replacement Therapy**. This is because progesterone is given with the estrogen to protect the uterus against endometrial carcinoma. **If no uterus, why to give progesterone**? ♠ ***Dyspareunia*** → *difficult or painful sexual intercourse.* ◙ **More information (For reading):**

• Menopause "Cessation of menstruation" is the time after a woman has her last menstrual period. Because her final periods can be irregular, menopause is confirmed 12 months after her last period.

• The menopause is a natural part of ageing that usually occurs between 45 and 55 years of age, as a woman's oestrogen levels decline. In the UK, the average age for a woman to reach the menopause is 51.

• The time of a woman's life following menopause is called postmenopause.

• Women in postmenopause may develop "Postmenopausal Vasomotor symptoms" such as Hot flushes, Night sweats.

• To manage these Vasomotor symptoms → **Hormone Replacement Therapy (HRT)** after evaluating pros and cons.

√ If she has had hysterectomy (No uterus), or if there is Intrauterine system "IUS" in situ → **Oestrogen-only HRT**.

√ Otherwise → **Combined HRT**.

♦ Note, if a postmenopausal ♀ is a **smoker**, the HRT is given "**Transdermal**" as the oral route has a higher risk for Venous Thromboembolism (VTE).

♦ **Note, Combined HRT (Hormone Replacement Therapy) has 2 types**:

- **Sequential "Cyclical" combined HRT** → used in the first 12 months of menopause or in perimenopause "still menstruating". Oestrogen is taken daily while Progesterone is taken Cyclically "for the last 14 days of a menstrual cycle".

	- **Continuous combined HRT** → used in menopausal women (women who have had their last menstrual cycle 12 months ago). Both Oestrogen and Progesterone are taken daily.
Key 10	***Example*** **(1),** A ♀ at her 39 weeks gestation had passed clear viscous fluid per vagina 4 days ago. Now, she is feverish, sweaty and with suprapubic tenderness. The symphysis-fundal height (SFH) is 35 cm. There is fetal tachycardia of 175 bpm. WBCs and CRP are ↑. The likely Dx → **Chorioamnionitis**. **Chorioamnionitis** → Inflammation of the fetal amnion and chorion membranes typically due to ascending bacterial vaginal infection when there is rupture of membranes. • PROM "Premature Rupture of Membrane" is a major risk factor for Chorioamnionitis (ascending vaginal bacteria) • Fever, sweaty, high WBCs and CRP → inflammation (itis) • The SFH is small for date (as she had PROM and lost amniotic fluid). (Oligohydramnios is one of the known causes of small for date uterus). **Chorioamnionitis Features: (Important √)** ▌*Maternal tachycardia (followed by) fever*

- *Fetal tachycardia*
- *Abdominal pain and uterine contractions (Suprapubic tenderness)*
- *Hx of PROM*
- *The amniotic fluid could be purulent, offensive, foul smelling, yellow or brown.*

- **Note, sometimes there won't be fever as maternal tachycardia often occurs before pyrexia (fever).**

i.e. Tachycardia (Then) → **Fever**

Example **(2),**

A lady at her 24 weeks gestation admitted for preterm premature rupture of membrane (PPROM). She does not have fever. However, she is tachycardic at 122 bpm and has abdominal pains, uterine contractions and suprapubic tenderness. Speculum examination reveals a foul-smelling discharge originating from the cervix with the cervix being slightly open.

The likely Dx → **Chorioamnionitis**.

All manifestations are toward chorioamnionitis (as mentioned above).

She is not feverish as Maternal Tachycardia often precedes maternal fever.

i.e. fever may develop later.

Additional points for your knowledge:

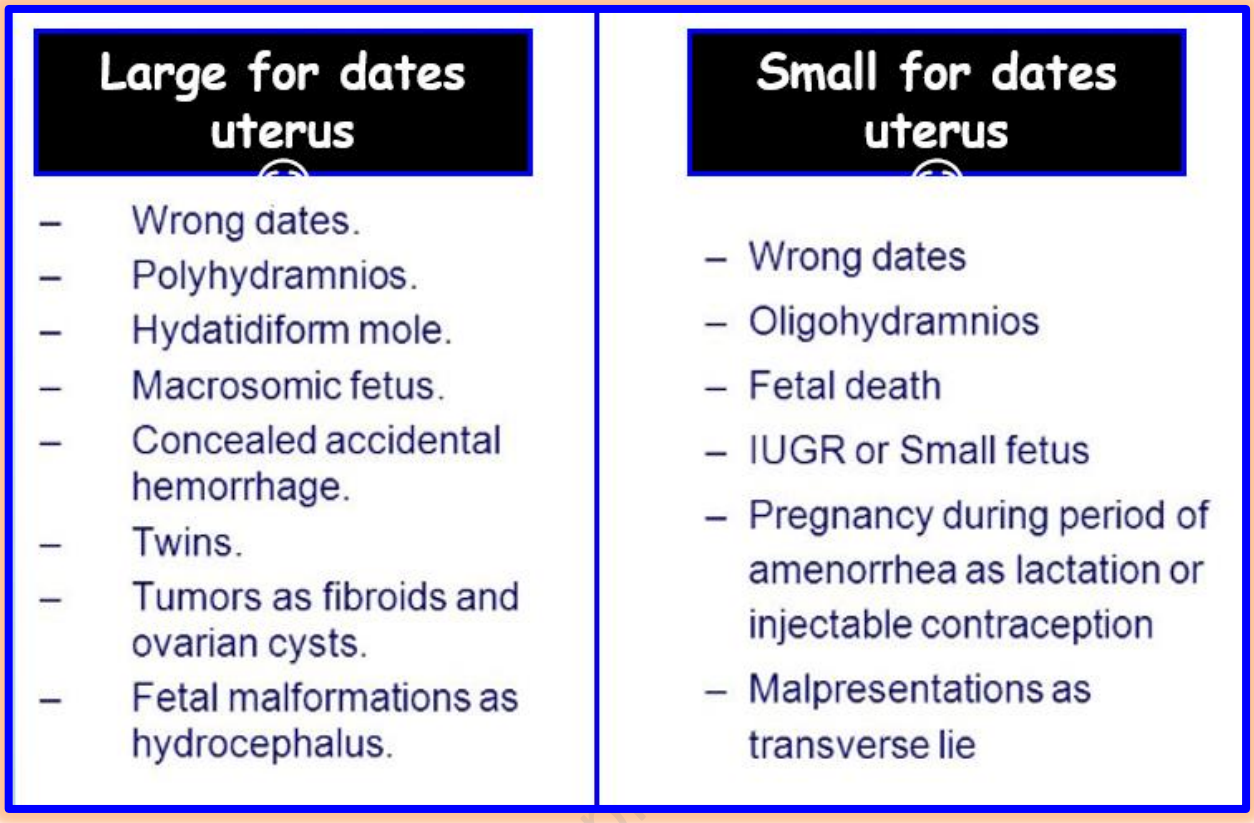
♦ Premature rupture of membranes (**PROM**) is the rupture of the fetal membranes before the onset of labour.

♦ Preterm premature rupture of membranes (**PPROM**) is ROM prior to 37 weeks' gestation.

♦ Prolonged rupture of membrane (**Prolonged ROM**) is any rupture of membrane that persists for more than 24 hours and prior to the onset of labour.

SFH (Symphysis Fundal Height)

Gestational age	Fundal height landmark
12 weeks	Pubic symphysis
20 weeks	It reaches the Umbilicus
20-36 weeks	**GA (in weeks) ± 2 = …. Cm**
36-40 weeks	Xiphoid process of sternum



Key 11	A pregnant lady at 37 weeks gestation presents with lower abdominal pain + small amounts vaginal bleeding. ♦ First step → **CTG** (suspected placental abruption). ♦ If not among the options → **Ultrasound** (to rule out placenta previa).
Key 12	In any a female (especially < 25 YO) who uses **IUS** (e.g. **Mirena**) and develops lower abdominal pain + Irregular menstrual cycles Suspect → **Pelvic inflammatory disease (PID)**

Quick Notes:

• **Intrauterine contraceptives** are a **major** risk factor for **PID**.

• **Presence of IUS (e.g. Mirena)** → **Alleviates the symptoms of endometriosis, adenomyosis and fibroids**.

√ Note, Adenomyosis = ectopic endometrial tissue within the myometrium itself (endometriosis within myometrium).

• **Asherman syndrome** → **endometrial adhesions usually following D&C** "Dilatation and Curettage" of the uterine cavity. It presents with abdominal pain and menstrual irregularities and causes infertility.

• **IUD** "**Device**" e.g. **Copper T**

• **IUS** "**System**" e.g. **Mirena (levonorgestrel-releasing IUS)**

ABCD (**C** → **D**) = (**C**opper → **D**evice)

Key 13

After **Broad-spectrum antibiotic** course → death of vaginal normal flora

→ a good chance for the development of **bacterial vaginosis** and/or **vaginal candidiasis**.

Trichomoniasis (**Trichomonas Vaginalis**)	√ Frothy, **yellowish-greenish** smelly vaginal discharge. √ Vaginal **itching** is **common**. √ Strawberry Cervix. √ Vaginal pH: > 4.5	Rx → Oral **Metronidazole**

Bacterial Vaginosis **(Gardnerella Vaginalis)**	√ **Thin**, **grey-white**, **fishy (VERY offensive) smelling** discharge. √ Vaginal itching is **uncommon**. √ Positive Whiff test (Potassium Hydroxide). √ Vaginal pH: > 4.5	Rx → **Metronidazole** + Clindamycin
Vulvovaginal Candidiasis **"Vaginal Thrush"** **(Candida Albicans)**	√ **Thick white** (Cheese-like) odourless vaginal discharge. √ Vaginal pH: 4-4.5	Rx → Local **Clotrimazole** (Anti-fungal)

Note, normal vaginal pH is **3.8 to 4.5**.

To Recap,

♣ **White Thick** discharge → candida (Vaginal Thrush).

♣ **Yellow-greenish** offensive discharge + vaginal **itching** ± **Strawberry** Cervix ± pH > 4.5 → Trichomonas Vaginalis (Trichomoniasis).

♣ **Offensive** discharge **Without itching** ± **fishy** smell ± pH > 4.5

→ Bacterial Vaginosis (Gardnerella Vaginalis).

Example (1)

A pregnant woman has taken antibiotic for her dental abscess. On the 3rd day, she developed **thick white** vaginal discharge.

◙ The likely diagnosis → **Vulvovaginal Candidiasis** "Vaginal Thrush".

◙ The Likely causative organism → **Candida Albicans**.

Example (2)

A young lady presents with **offensive vaginal discharge**. She is sexually active with a single partner. Her vaginal **pH is 5.5**. High vaginal swabs are taken for culture.

The likely organism → **Gardnerella Vaginalis. (Bacterial Vaginosis)**.

Treatment → **Metronidazole**.

Both **Bacterial Vaginosis (Gardnerella Vaginalis)** and **Trichomoniasis (Trichomonas Vaginalis)** can cause offensive vaginal discharge and pH >4.5.

However,

♦ Bacterial Vaginosis "Gardnerella Vaginalis" is more common.

♦ Trichomoniasis "Trichomonas Vaginalis" has yellow-greenish offensive vaginal discharge + it usually causes **vaginal itching**.

Note:

Although Bacterial Vaginosis "Gardnerella Vaginalis" is not a sexually-transmitted disease, it is the most common cause of abnormal vaginal discharge in ♀ in childbearing age.

◙ **Amsel's Criteria**: **3 of 4 criteria** are diagnostic for **Bacterial Vaginosis**:

√ Homogenous grey-white discharge.

√ When adding Potassium Hydroxide 10% (KOH) to the discharge → fishy smell (Whiff test).

√ "Clue Cells" under microscopy.

√ Vaginal pH > 4.5

Example (3)

A 40 YO ♀ presents with an offensive malodorous vaginal discharge that is clear in colour. Its pH is 5.1. There is no vaginal itching, abdominal pain or dyspareunia.

The likely causative organism → **Gardnerella Vaginosis**.

	• No vaginal itching + Not yellow-greenish + pH > 4.5 --- ***Example (4)*** A 30 YO ♀ presents with a **very strong foul-smelling vaginal discharge**. Which of these organisms is likely responsible? (**Chlamydia** / **N. Gonorrhea** / **Gardnerella** / or **All of them**)? The answer is → **Gardnerella**. ***Do not get tricked!*** **Chlamydia** and **N. Gonorrhea** **do not** usually present with Foul-smelling discharge.
Key 14	Again, In **Placenta previa** (Painless Vaginal bleeding in the 3rd trimester) → **Transvaginal Ultrasound** (preferred over Abdominal U/S). **Note**,

	The presence of a fetus in a transverse lie in a primigravid ♀ is a clue that there is a mass in the way. If [+] painless vaginal bleeding → this mass is most likely the placenta occluding the cervical os (Placenta previa).
Key 15	• Cessation of menstruation (**Prolonged Amenorrhea**) in ♀ **< 40 YO** → Suspect → **Premature Ovarian Failure** (**POF**). → Request → **Serum FSH**. **(↑ FSH** > 25 IU/L in **two** occasions **4 weeks apart** is diagnostic). → Rx → **Hormone Replacement Therapy** (HRT) **Until the age of 51 YO**. • Amenorrhea in ♀ aged **40-45 YO** → **Early menopause** (not Premature ovarian failure. They are different). Others: hot flushes, sweating… Request → **Serum FSH & Ultrasound**. **Presentations of Premature Ovarian Failure:** ♦ Amenorrhea/ Oligomenorrhea is commonest presentation. (**√**) ♦ Postmenopausal features (e.g. hot flushes, night sweats, vaginal dryness, dyspareunia, irritability). ♦ Infertility. ◙ **Important Note:**

	Although the most common cause of **Premature Ovarian Failure** is ***Idiopathic***, it can occur ***after Chemotherapy*** or Irradiation as well!
Key 16	**Atrophic vaginitis = vulvovaginal atrophy** **= genitourinary syndrome of menopause (GSM)** • **Presentation** → **Urinary manifestations** (*Dysuria, Frequency, incontinence, nocturia*) **[±]** **Vaginal Atrophy manifestations** (e.g., *Dyspareunia/ vaginal itching/ dryness/ burning*) in a ♀ in the menopause age (usually > 50). ♠ ***Dyspareunia*** → *difficult or painful sexual intercourse.* • **Occurs due to** → Estrogen deficiency after menopause. • **Rx** → **Topical Estrogen** "Intravaginal estrogen". "**Oestrogen cream**". ♦ If a female presents with **only atrophic vaginitis** (dyspareunia, dysuria, vaginal dryness) → **Local oestrogen** **"Oestrogen Cream"**. ♦ **If associated with recurrent UTIs:** → Vaginal oestrogen tablets (pessary).

	♦ If + other menopausal symptoms (e.g., hot flushes) → **Hormonal replacement therapy (HRT)**. Another possible answer → **Transdermal Estradiol and Progesterone patches**
Key 17	Remember: **Cancer Screening Programmes available in the UK** • **Colorectal Cancer Screening:** √ Fecal Immunochemical Test (FIT). √ 60-74 YO every 2 years. • **Breast Cancer Screening:** √ (Mammogram). √ ♀ 50-70 YO every 3 years. √ Those with high risk → 40-70 YO annually. • **Cervical (Cervix) Cancer Screening:** **√ (Pap smear – Cervical smear: Cytology, HPV)** **√ 25-49 YO → every 3 years.**

√ 50-64 → every 5 years.

◙ Cervical ectropion that causes NO bleeding or pain during or after sexual intercourse should be left alone (**Reassurance**). It is not even a risk factor for cervical carcinoma.

◙ **Cervical ectropion**: (Red ring around the os)

The stratified squamous epithelium that lines the Ectocervix (Vaginal part of cervix) is replaced by Columnar epithelium (that lines the endocervix) (*Migration of the epithelium of the endocervix onto the epithelium of the ectocervix*)

In short

→ (the stratified **Squamous** **Ectocervix** is replaced by **Columnar** epithelium).

"In high oestrogen states (e.g. pregnancy, COCP), the endocervix columnar epithelium comes further down "migrates". This is friable and thus bleeds.

√ This occurs due to **↑ Oestrogen** (e.g. ***Pregnancy***, ***Puberty***, using ***COCP***).

√ It is generally **asymptomatic** but can present with **painless vaginal bleeding** or **non-purulent watery discharge post-coital** (after intercourse).

√ **No Rx is required** unless symptoms are annoying → **Cervical smear** (if normal) → Cryotherapy/ Diathermy/ Cautery with silver nitrate.

Important:

If the ectropion is symptomatic (e.g., it causes bleeds on touch)

→ Refer for colposcopy.

Otherwise → Reassure.

Just for memory refreshing, in the **Barret's oesophagus**:

[**Squamous** epithelium of the lower 1/3 of the oesophagus turns to **Columnar** epithelium **with goblet cells → RF for Adenocarcinoma**]

This is called (METAPLASIA) "important √"

Example (1)

A 31 YO ♀ presents enquiring about vaginal spotting 2 days ago. She is on COCP. Last cervical smear was 1 year ago and reported normal. O/E, cervical ectropion is diagnosed. There is **no** bleeding on touch.

The next step → **Reassurance**.

√ If the cervical ectropion **bleeds on touch** and the cervical smear is normal → **Refer for colposcopy**.

√ If smear was done > 3 years ago → order cervical smear.

Cervical smear is required once every 3 years in ♀ aged 25-49 YO. Thus, no need to repeat it as it was normal only 1 year back.

√ If no bothersome symptoms (no bleeding on touch) → leave the ectropion alone (**Reassure**).

√ Please note that if there is post coital bleeding + Hx of new partner/ vaginal discharge/ abdominal pain, we suspect cervicitis and order endocervical swab.

Example (2)

A 29 YO female presents complaining of post-coital painless vaginal bleeding. U/S shows placenta anterior and high. Fetal movements and heart are seen on the U/S. Her abdomen is soft, lax and non-tender.

◙ The likely Dx → **Cervical ectropion**

(Remember, RFs of cervical ectropion includes pregnancy, using COCP).

♦ When reading "**Painless vaginal bleeding**", the first thing that comes to mind is (**Placenta Previa**). However, the U/S here revealed that the placenta is **normally situated** (Anterior and High), whereas in placenta previa, it would be down/ low (occluding the cervical os).

♦ **What other benign condition in such a young "pregnant" lady that can cause painless vaginal bleeding "after sexual intercourse"?**

Yes, **cervical ectropion**. Nonetheless, further investigations are needed to confirm it such as local speculum examinations ± cervical smear.

♦ Note, as **fetal heart** is seen on the U/S → It is **not** missed **miscarriage**.

♦ Remember, in **placenta abruption**, the abdomen would be **TENDER**, **hard** (painful vaginal bleeding).

"Bleeding is not always existing in placental abruption as it might be concealed bleeding"

Key 18

Pre-eclampsia and Eclampsia

Preeclampsia:

It is a condition seen **after the 20th week of gestation**, characterized by:

√ BP >140/90 (**Pregnancy-induced Hypertension**) **+ one of the following**:

√ - Protein in urine (**proteinuria ≥ 0.3 g/24 hr ie, ≥ 300 mg/24 hr**), **or**

- Protein/Creatinine ratio (**PCR**) ≥ **30** mg/mmol, **or**

- Albumin/Creatinine ratio (**ACR**) ≥ **8** mg/mmol.

In short:

> 20 weeks gestation (+) HTN (+) Proteinuria → Think: Preeclampsia.

◙ Risk Factors of Preeclampsia include:

First pregnancy, Pregnant Teens or Women over 40 YO, Pre-existing HTN in pregnancy, DM, CKD, Chronic HTN, Pregnancy interval > 10 years, FHx.

◙ Symptoms occur in severe preeclampsia (ie, BP ≥ 160/110):

Headaches, Visual disturbance (flashing lights),

Epigastric or upper right quadrant pain, Rapid edema (especially in face).

◙ Management of Pre-eclampsia (important) √:

• First-line antihypertensive (if BP >140/90) in preeclampsia pregnant women

→ **Oral labetalol**.

Other safe antihypertensives → Hydralazine, Methyldopa, Nifedipine.

• Women at risk factors of preeclampsia are advised to take aspirin 75-150 mg daily from the 12th week gestation until the delivery.

◙ **Important points on the management of -severe- preeclampsia:**

If the patient is having a (**severe**) preeclampsia (ie, BP ≥ 160/110 with symptoms such as headaches, visual disturbance, epigastric pain) **AND**

1 or > of the following: (**Brisk reflexes** -hyperreflexia), **clonus**, **eclamptic fits**

In addition to **labetalol** (which is the first-line antihypertensive in pregnancy),

Give → a prophylactic dose of **IV magnesium sulphate** (to prevent eclampsia).

Then → Plan for the delivery of the baby once the patient is stabilised.

This is because the delivery of placenta (induction of labour) is the only cure for preeclampsia. However, one should balance out the risk of too prematurity of a baby against the preeclampsia complications. In all cases, stabilise the patient first (eg, if severe preeclampsia → IV MgSO4 first).

Additional Notes on Preeclampsia:

◙ There is no cure for **preeclampsia** except for **The delivery of the baby**.

◙ Women with **mild** preeclampsia may be treated **conservatively** to allow the baby to mature, as long as they are **closely monitored**. They may be given corticosteroids to help the baby's lungs mature and **magnesium sulfate to prevent seizures**. Sometimes, medications to **lower blood pressure** (eg, **Labetalol**) are needed.

◙ ***Fetal complications*** of preeclampsia include the risk of **preterm delivery**, **oligohydramnios** (low fluid volume within the uterus), and **sub-optimal fetal growth**.

◙ ***Maternal complications*** of preeclampsia and eclampsia include **liver** and **kidney failure**, **bleeding** and **clotting disorders**, and **HELLP syndrome**.

Eclampsia

It is the development of **Tonic-clonic (grand-mal) seizures** in a woman with severe **preeclampsia**. It has a 2% mortality (death) rate.

Preeclampsia (HTN, significant proteinuria, ≥ 20 weeks gestation)

+ Seizures

= Eclampsia.

◙ Management of Eclampsia (Important) √:

√ To control/ prevent **seizure** → **MgSO4 (Magnesium sulphate)**.

√ If another fit? → **A further bolus of IV MgSO4**.

MgSO4 regimen (important √)

√ **Loading dose of MGSO4**:

→ **4 g in 100 ml 0.9% NS by infusion pump over 5-10 min**. (*important*)

√ Followed by 1 g/hour (**maintenance**) for 24 hours after the last seizure.

	√ **Recurrent seizure**? Either give a further 2 g MgSO4 bolus **or** ↑ the infusion rate to 1.5-2 g/hour (instead of 1 g/hour). ◙ **What if MgSO4 overdose develops (eg, loss of deep tendon reflexes, Nausea, Vomiting, Confusion)?** 1) **Stop** the MgSO4. 2) Request serum MgSO4 levels urgently. 3) Give **Diazepam** (**only if there is still ongoing seizure**). 4) Give **Calcium gluconate** (as an **antidote for MgSO4**). ♦ After you have managed the seizure and the patient is stable ► **Delivery of the baby (Induce labour)**. **Important note,** Eclamptic fits "Seizures" can occur in the **postpartum periods** (rarely without a Hx of preeclampsia – HTN and Proteinuria- However, it is possible)!
Key 19	• **HELLP Syndrome** → **H**emolysis (low Hb), **E**levated **L**iver enzymes, **L**ow **P**latelets. ♦ **Features**: **Epigastric or RUQ pain** & tenderness ± **Nausea and Vomiting** ± dark or tea coloured urine "due to hemolysis" ± HTN and other features of **preeclampsia**

♦ **Rx** → **Delivery of the baby** ▌**MgSO4** if **seizures** (**eclampsia**)

• Acute Fatty Liver of Pregnancy (AFLP)

→ **ELLP** (without **H**emolysis) + (↓) Glucose ± (↑) Ammonia

• Disseminated Intravascular Coagulation (DIC)

→ High PT, High PTT, High Bleeding Time, Low Platelets, Low Fibrinogen

Example (1),

A pregnant woman in her 35 weeks pregnancy developed sudden severe (acute) abdominal pain and is taken for emergency C-Section. Her BP 110/60. Labs:

Hb: 101 ▌WBC 9.5 (Normal) ▌Platelets 65 (Low) ▌PT 28 sec (high) ▌PTT 67 sec (high) ▌Fibrinogen 0.7 (low) ▌Bilirubin 23 (high)

The likely Dx → **Disseminated Intravascular Coagulation (DIC)**.

High PT, PTT

Low Platelets, Fibrinogen

→ **DIC** (see the comparison above)

◙ Remember: **DIC Triggers**→ sepsis, surgery, major trauma, cancer, and **complications of pregnancy**

This lady might have developed Placenta abruption which has led to DIC.

Example (2),

A 32 YO pregnant lady at her 38 weeks gestation presents feeling unwell with sudden onset epigastric pain associated with nausea and vomiting. Her temperature is 36.8 C. Her blood pressure is 150/100. Her Labs show raised liver enzymes and: Hb 8.6 (low), WBC 5 (Normal), Platelets 90 (low).

◙ The likely Dx → **HELLP Syndrome**

◙ Rx → **Delivery of the baby**.

♦ HELLP syndrome is a complication of **preeclampsia**. She might be having preeclampsia as she is **hypertensive** and after the 20th week of gestation. However, proteinuria needs to be investigated.

♦ **HELLP**:

Hemolysis (low Hb) | **E**levated **L**iver enzymes | **L**ow **P**latelets

All are seen here.

♦ The presentation is also compatible with HELLP syndrome "**epigastric pain with nausea and vomiting**".

Example (3),

A 29 YO female had pre-eclampsia and was delivered by C-section. She is now complaining of right upper quadrant pain.

The next appropriate investigation → **Liver function tests**.

√ She might have developed HELLP syndrome. We need to check liver enzymes to help in Dx as they are elevated in HELLP syndrome.

- Pre-eclampsia (RF of HELLP syndrome).
- RUQ pain (one manifestation of HELLP syndrome).

Key 20	◙ For any female > 51 YO presents with Postmenopausal vaginal bleeding √ **Suspect** → **Endometrial Carcinoma** √ **Order** → **Transvaginal Ultrasound** (To check the **endometrial thickness**) √ If Endometrial Thickness is **> 4 mm** → **Hysteroscopy with endometrial biopsy**. Again, In any woman in postmenopausal age presents with vaginal bleeding (even if post-coital), if the question asks about the **initial (next) test** → **Transvaginal US** If it asks about the **diagnostic/ most definitive** test → **Hysteroscopy with endometrial biopsy**. However, if the question asks about the (**most likely Dx**), **atrophic vaginitis** and vulvovaginal atrophy are the commonest causes of postmenopausal bleeding. However, **the most worrisome diagnosis** that need investigation by US ± hysteroscopy and biopsy is endometrial carcinoma. This is why our next step would always be transvaginal US to R/O endometrial carcinoma. Notes, ♦ **Progesterone** (e.g. in combined HRT) **reduces** the risk for endometrial carcinoma.

	♦ **RFs of Endometrial Carcinoma**: Obesity/ Nulliparity/ Unopposed estrogen (estrogen given alone without progesterone)/ PCOS/ Tamoxifen/ Early menarche/ Late menopause/ DM (i.e. anything the increase the duration of the exposure of the endometrium to more and more estrogen)
Key 21	◙ **Antiphospholipid syndrome** is associated with **recurrent miscarriages**. To avoid future miscarriage: → **Give Aspirin + Low Molecular Weight Heparin** ◙ All females with recurrent abortions (≥ 3 miscarriages) in the first trimester (≤ 13-week gestation) + those with one or more abortions in the 2nd trimester should be screened for → **Antiphospholipid antibodies**. ◙ **Antiphospholipid antibodies include:** √ Lupus anticoagulants. √ Anti-cardiolipin antibodies. √ Anti-B2 glycoprotein-1 antibodies.

Key 22

Endometriosis

Endometriosis is a common condition characterised by the growth of ectopic endometrial tissue outside of the uterine cavity. Around 10% of women of a **reproductive age** have a degree of endometriosis.

◙ Clinical features

- **Chronic pelvic pain (may be cyclic -with periods-).**
- **Dysmenorrhoea** (**Painful periods**) – pain often starts days before bleeding.
- **Deep dyspareunia (Painful intercourse).**
- Subfertility.
- ± Non-gynaecological: urinary symptoms e.g., **dysuria**, urgency, haematuria, **dyschezia** (painful bowel movements).

◙ Investigation

Laparoscopy and dye test is the **gold-standard** (most definitive) investigation Not Hysteroscopy (remember, the tissues are outside the uterine cavity!).

Laparoscopy may show small powder burn lesions/ Gunshot lesions especially in Douglas Pouch which is a common site for endometriosis (that is why patients may suffer from dyschezia which is painful defecation).

◙ Management

√ **NSAIDs** and/or **paracetamol** are the recommended first-line treatment for symptomatic relief.

√ If analgesia does not help, then hormonal treatments such as the

→ **A trial of combined oral contraceptive pill** or progestogens e.g. medroxyprogesterone acetate should be **tried.**

Note,

Treat suspected endometriosis empirically with COCPs or Progesterone as a trial for 3-6 months before laparoscopy as long as the fertility is not an issue.

Surgery:

• Laparoscopic ablation and excision of endometrioid lesions help reduce endometriosis-associated pain.

• Laparoscopic ablation and excision of endometriotic ovarian cysts may improve fertility.

(Remember, surgical intervention is done at the same time as the laparoscopy for diagnosis).

Example,

A 40 YO lady presents with painful periods. The pain is worse on the first day of the cycle and continues for 5 days. She has regular 28-days cycles. She is sterilised (she had a laparoscopic tubal sterilisation in the past). She is sexually

active with one regular partner. She takes NSAIDs and paracetamol for pain relief during the first few days of the pelvic pain. Endometriosis is suspected.

The most appropriate action → **A trial of COCP**

The most definitive test for Dx → **Laparoscopy**

Treat a suspected endometriosis empirically with COCP or Progesterone as a trial for 3-6 months before laparoscopy as long as the fertility is not an issue.

It is important to note that this lady is already fertile. Thus, managing her pain is the priority here → COCP.

If the management is directed towards saving her fertility, we would go for laparoscopy first.

Key 23

Pelvic inflammatory disease

Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. It is usually the result of ascending infection from the endocervix

Causative organisms

√ Chlamydia trachomatis – the most common cause.

√ Neisseria gonorrhoeae.

Features

- Lower abdominal (pelvic) pain
- Fever
- Deep dyspareunia (Painful sexual intercourse)
- Dysuria and menstrual irregularities may occur
- Vaginal or cervical discharge
- Cervical excitation (Cervical motion tenderness).
- Abnormal vaginal bleeding (e.g. post-coital)

Investigation

screen for Chlamydia and Gonorrhoea

Remember that IUS and multiple partners are common risk factors for PID.

Risk Factors of PID

♀ **< 25 YO** | **IUS and IUD** | **New or multiple sexual partners** | **Previous STIs** | **Uterine instrumentation (e.g. surgical termination of pregnancy)**

Complications

- Infertility – the risk may be as high as 10-20% after a single episode

- Chronic pelvic pain
- Ectopic pregnancy
- **Tubo-ovarian abscess** (important √). If left untreated or if ineffective Rx.

♦ Tubo-ovarian abscess should be suspected if a female presents with:

lower abdominal pain and **tenderness** with **High Fever** + **NO DISCHARGE**.

♦ **Additional hints**:

(Sexually active and doesn't use barriers) → risk for chlamydia/ Gonorrhea → cervicitis, ascends → PID, untreated→ Tubo-Ovarian Abscess.

If Tubo-ovarian abscess is suspected → **Pelvic Ultrasound**.

Note that cervical/ high vaginal swabs would take days to return, whereas pelvic ultrasound can be immediately performed and may show the abscess.

Management of PID has different regiments based on local guidelines.

Remember that Cervicitis alone is different from PID.

Remember the following lines of treatment:

◙ Antibiotic Regimens for Cervicitis:

(According to the recent guidelines).

♦ **Chlamydia**

◙ **1st line** → Doxycycline 100 mg BID for 7 Days.

◙ **Another line**:

Azithromycin 1-gram PO ▌Followed by 500 mg PO OD for 2 days.

♦ **Neisseria Gonorrhea**: (**C or C**) both are single doses

◙ Ceftriaxone 1 gm IM (single dose). Or:

◙ Ciprofloxacin 500 mg PO (Single dose).

◙ **In PID "Pelvic Inflammatory Disease"** → **CDM**

◙ **Outpatient → (OM)**

• Oral **Ofloxacin** + oral **Metronidazole**

or

• Intramuscular **ceftriaxone** + oral **doxycycline** + oral **metronidazole**

◙ **Inpatient → (CDM)**

Ceftriaxone + Doxycycline + Metronidazole

(This is just an example of a regimen; the guidelines are variable)

	♠ **Note:** Cervicitis "presents with Vaginal Discharge" does not ascend upwards to the pelvic structures. So, there is usually no pelvic pain. In contrast, PID involves Adnexa and other genital structure; hence, pelvic pain, deep dyspareunia, cervical motion tenderness.
Key 24	**5 Ds of Endometriosis** • **D**ysmenorrhea (Painful Periods). • **D**yspareunia (Painful intercourse). • **D**yschezia (Painful Defecation). • **D**ysuria. • **D**ull chronic pelvic pain. - **NSAIDs**/ **Paracetamol** → First-line for pain. - A **trial of COCPs** is given if the fertility is not an issue. - **Laparoscopy** is the investigation of choice. If similar (not exact) presentation with fever, ↑ WBCs, Cervical excitation → Think of **PID "Pelvic inflammatory disease)**. → (**CDM** for Rx: **C**eftriaxone + **D**oxycycline + **M**etronidazole)

Key 25

After initiating Depo-Provera 2 months ago, a female presents complaining of unscheduled bleeding.

→ **Reassure and advice to return if bleeding become problematic**.

The majority of females who start Depo-Provera (Progesterone-only IM injections taken once every 3 months "12 weeks") tend to have intermenstrual spotting. This usually settles after a year of Depo-Provera use.

If bleeding becomes bothersome

→ **COCP** "for 3 months" or **Mefenamic acid** "for 5 days" (while she is still on Depo-Provera)

Remember,

- Depo-Provera should be **avoided** in females **< 20 YO**.
- Depo-Provera is the **first-line** in females with **SCA** and **Menorrhagia**.
- Depo-Provera does not prevent STDs "Sexually transmitted disease".
- We should consider **STIs** as one of the DDx if there is intermenstrual bleeding (**spotting between cycles**).

Key 26

Urinary Incontinence Management (Important √)

Incontinence → Involuntary leakage of urine.

◙ Stress incontinence

♦ **Leakage** of urine during activity (***sneezing***, ***coughing***, ***laughing***).

♦ The cause → The bladder outlet is weak (weak tone) and cannot counter-act the raised intra-abdominal pressure during activity. Also, with multiple vaginal deliveries → Pelvic floor muscles become weak.

◘ Treatment:

√ The **initial** Rx of choice → **Pelvic floor exercise** (at least 8 pelvic contractions, 3 times a day, for at least 3 months).

√ If failed → Surgical **retropubic mid-urethral tape =** (**Free-tension vaginal tape**)

√ If surgery is not possible → **Duloxetine**.

Note: **Another use of pelvic floor muscle training**

→ symptomatic **Pelvic Organ Prolapse** stage 1 (e.g., uterine prolapse above the introitus level) or stage 2 (e.g., uterine prolapse until the level of introitus). It is tried first. Then: vaginal pessary insertion.

◙ Urge incontinence

♦ ***Leakage of urine with extreme sensation of need to void***.

When I feel the desire to pee, I have to go and pee!

Or:

When I feel a desire to pee, sometimes I slightly wet myself "Leakage" before making it to the bathroom!

♦ The cause → the bladder muscle **(Detrusor) is overactive** and thus leads to loss of urine.

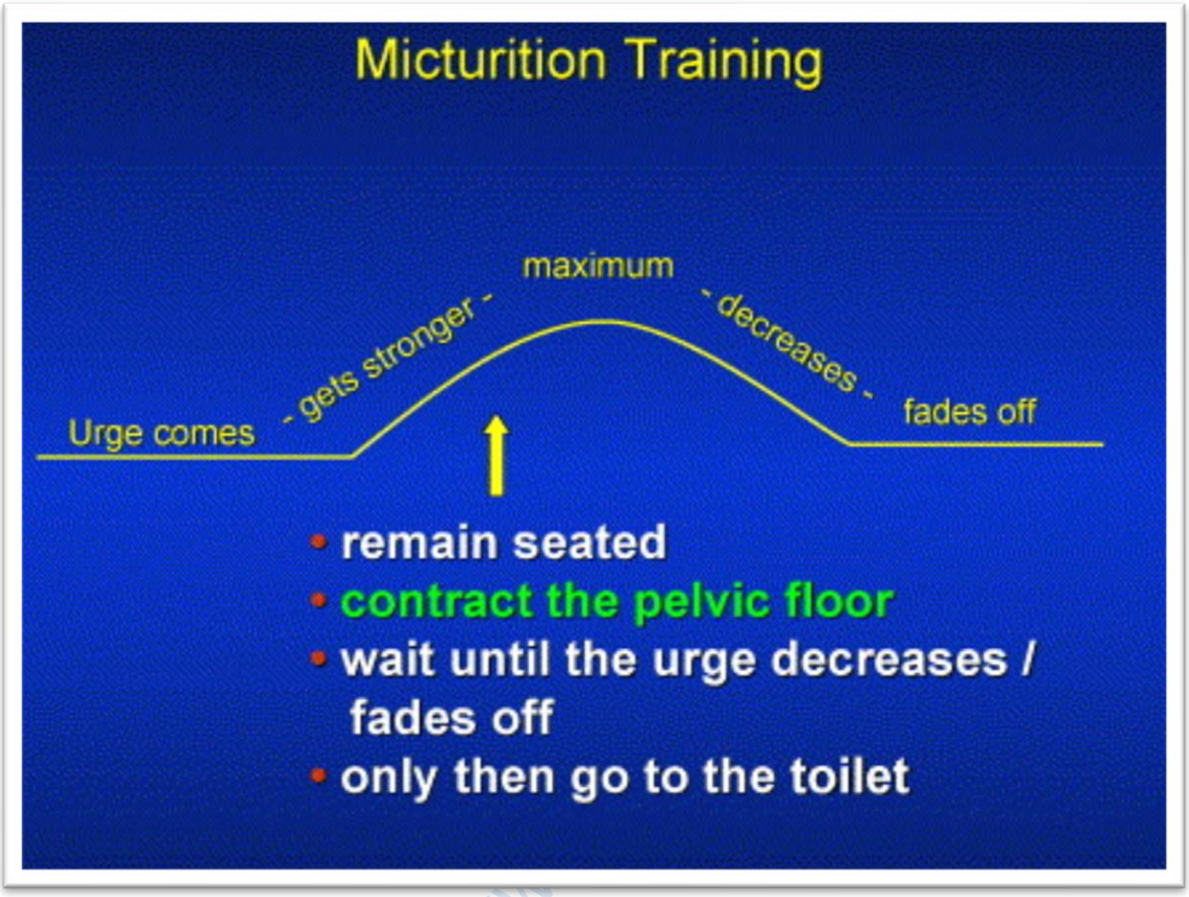
◘ **Treatment:**

√ **Bladder drill (Retraining)** → gradually increase the periods between voiding. (for 6 weeks). + **Behavioral "avoid coffee, alcohol"**.

√ If drugs are needed → **Antimuscarinic** (e.g., immediate release **Oxybutynin**)

Another important antimuscarinic drug to remember → **Tolterodine**

Both medications were targeted int the exam.



Key 27

Important Notes on Tamoxifen

√ It is a [Selective estrogen receptor modulator -SERM-].

While tamoxifen acts like an anti-estrogen in breast cells, it acts like an estrogen in other tissues, like the uterus and the bones. Because of this, it is called a selective estrogen receptor modulator (SERM).

√ It is used in the **treatment** of **Breast cancer**.

√ It is helpful after **breast cancer in men** who have **positive estrogen receptors** (around 90% of men with breast cancer).

√ **It increases the risk of Endometrial carcinoma**.

√ It prevents bone loss (guards against osteoporosis).

♦ Some studies support that when giving **tamoxifen** to a breast cancer patient, giving (**Bisphosphonates**) helps reduce the risk of bone metastasis.

♦ In patients who take Tamoxifen, the **most important alarming symptom** would be → **Vaginal bleeding** (as it ↑ risk of endometrial carcinoma).

NOTE:

Post-menopausal women with breast cancer who have high risk of recurrence **OR** those with Lymph Node metastasise are given → Bisphosphonates as an adjunctive therapy after surgery.

Key 28

Types of Miscarriage (Abortion) (important √)

◙ **Threatened**	Vaginal Bleeding + Closed Cervical os + Visible fetal heart
◙ **Inevitable**	Vaginal Bleeding + **Opened** Cervical os
◙ **Missed (delayed)**	The fetus is dead before 20-week gestation. Cervical os is closed. (±) Vaginal bleeding. US → no fetal heart.
◙ **Incomplete**	Not all products of conception have been expelled
◙ **Complete**	Everything has been expelled

	√ **Threatened**, there is vaginal bleeding but the os is closed (the visible fetal heart is threatened, expulsion may or may not occur) √ **Inevitable**, no way to save it, the os is opened "ready" and the bleeding is ongoing. √ **Delayed** (**missed**), the fetus is dead silently (before 20 weeks of gestation). The os is closed as nothing has happened. The vaginal bleeding is not always a feature. √ **Incomplete**, on US, there are still products of conception inside uterus. √ **Compete**, on US, the uterus is empty. ♦ For knowledge, dead fetus: - Before 24 weeks gestation → Miscarriage. - After 24 weeks gestation → still-birth. ♦ **For knowledge, in normal pregnancy, the fetal heart is seen at 6 weeks.**
Key 29	◙ **Sometimes, after cessation of COCP, amenorrhea continues, normally, for 3-6 months**.

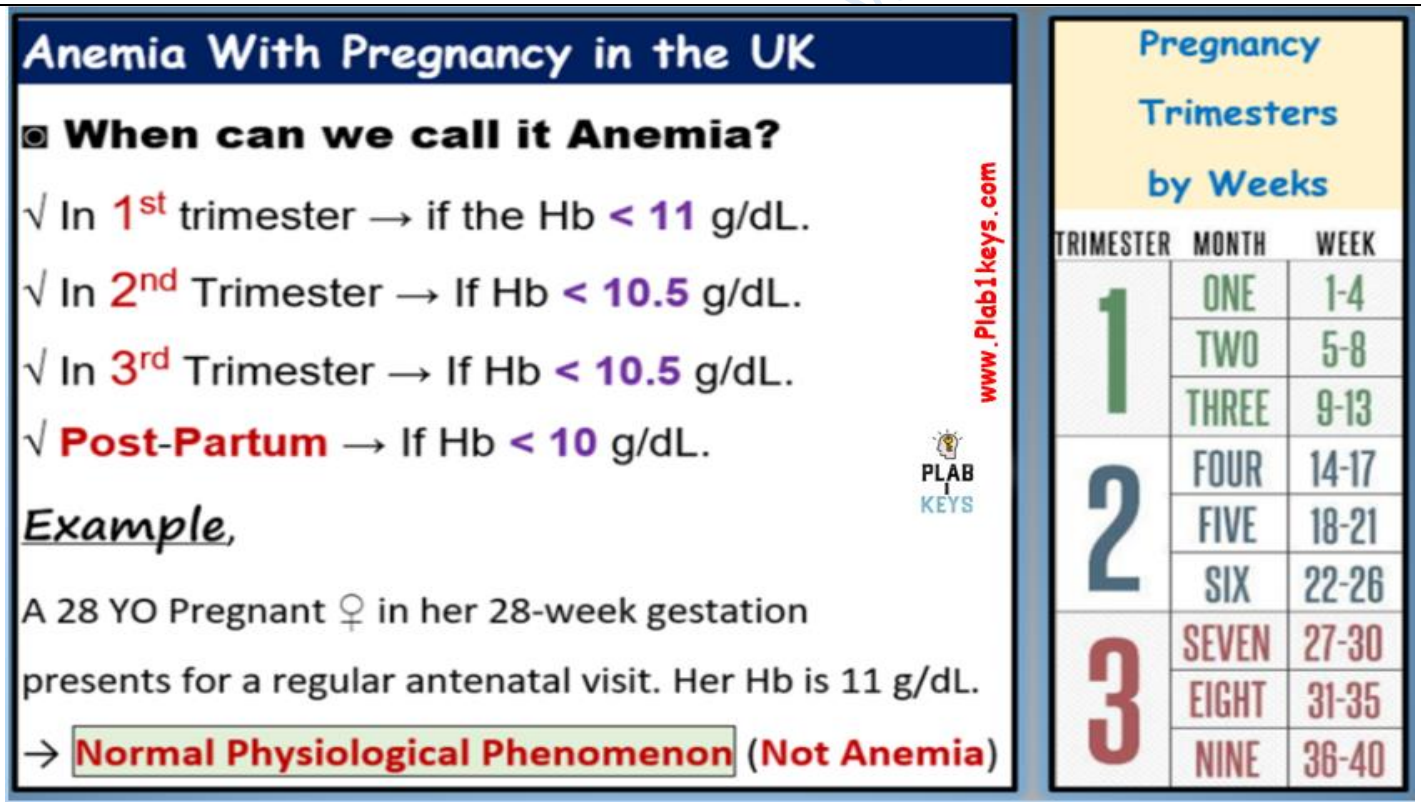
	♦ This is called → **Post-pill Amenorrhea**. **However**, If the **amenorrhea persists** for **> 6 months**, check **FSH** (especially if the female is < 40 YO). **If FSH is > 25 IU/L**, suspect → **Premature Ovarian Failure** (POF) → order another FSH after 4 weeks to confirm the Dx of POF. • ***Note, In Premature Ovarian Failure:*** **FSH, LH ↑ ▌Estradiol ↓ (<50) ▌prolactin is normal.**
Key 30	**Note**, Salpingitis (PID), Endometriosis, Ovarian torsions and ovarian tumours are **not** associated with Amenorrhea (cessation of menstrual cycles).
Key 31	**For any female in childbearing age presenting with abdominal pain** → Always check **Urine Pregnancy Test**

This is because of the fear of Ectopic pregnancy as "***ruptured ectopic pregnancy is life-threatening***"!

◙ **Lower abdominal pain** (usually unilateral) + **Recent Amenorrhea** (6-8 weeks) ± Vaginal spotting ± Cervical excitation

→ **Ectopic Pregnancy**.

Key 32



Example 1,

A 30 YO woman who had a normal vaginal delivery 3 weeks ago presents complaining of feeling tired. Hb is 9.4 mg/dl. MCV 79 fL (low).

The Rx → **Ferrous sulphate (iron supplement)**. Even if asymptomatic!

Post-partum Hb of < 10 g/dl → Anemia.

With low MCV → Iron deficiency anemia.

Example 2,

A 29 YO female presents to antenatal care for a check-up. Her 28-week gestation Hb is 107 g/L. MCV 91 fL.

The Rx → **No treatment is required**.

√ She is in the third trimester (≤ 10.5 is considered anemia)

Note that her MCV is normal (normal range of MCV: 76-96 fL.

Kindly note that **107 (g/L)** is the same as **10.7 (mg/dl)** with unit differences.

Key 33

◙ **Remember**,

♦ Preeclampsia

= **HTN** + **Proteinuria (> 0.3 g/24 hr)** after the **20th week** of gestation.

√ To control **HTN** → **Labetalol** (first-line).

** If Asthmatic (even if well controlled asthma), avoid labetalol (as beta blockers are contraindicated in asthma).

Instead, give → **nifedipine**. Imp √

♦ **Eclampsia** = Tonic-clonic (grand-mal) **seizure** + **Preeclampsia**.

√ To control/ prevent **seizure** → **MgSO4 (Magnesium sulphate)**.

√ If another fit? → **a further IV bolus of MgSO4**.

MgSO4 regimen (important √)

√ **Loading dose of MGSO4**:

→ **4 g in 100 ml 0.9% NS by infusion pump over 5-10 min**. (*important*).

Key 34

◙ On delivering a baby, with every retraction, the fetal head emerges then retracts immediately. This is called (**Turtle signs**) and it is seen in

→ (**Shoulder dystocia**).

Call for help → **Episiotomy (can be delayed)** → **Rotation manoeuvres**.

Shoulder Dystocia usually occurs due to impaction of the anterior fetal shoulder on the maternal pubic symphysis. An **additional help** should be called as soon as shoulder dystocia is identified and **McRoberts' manoeuvre** should be performed. This manoeuvre entails *flexion and abduction of the maternal hips, bringing the mother's thighs towards her abdomen*. This is followed by applying **Suprapubic pressure**.

An **episiotomy** will not relieve the bony obstruction but is sometimes used to *allow better access for internal manoeuvres*.

Oxytocin administration is **not** indicated in shoulder dystocia.

◙ Some RFs of Shoulder dystocia

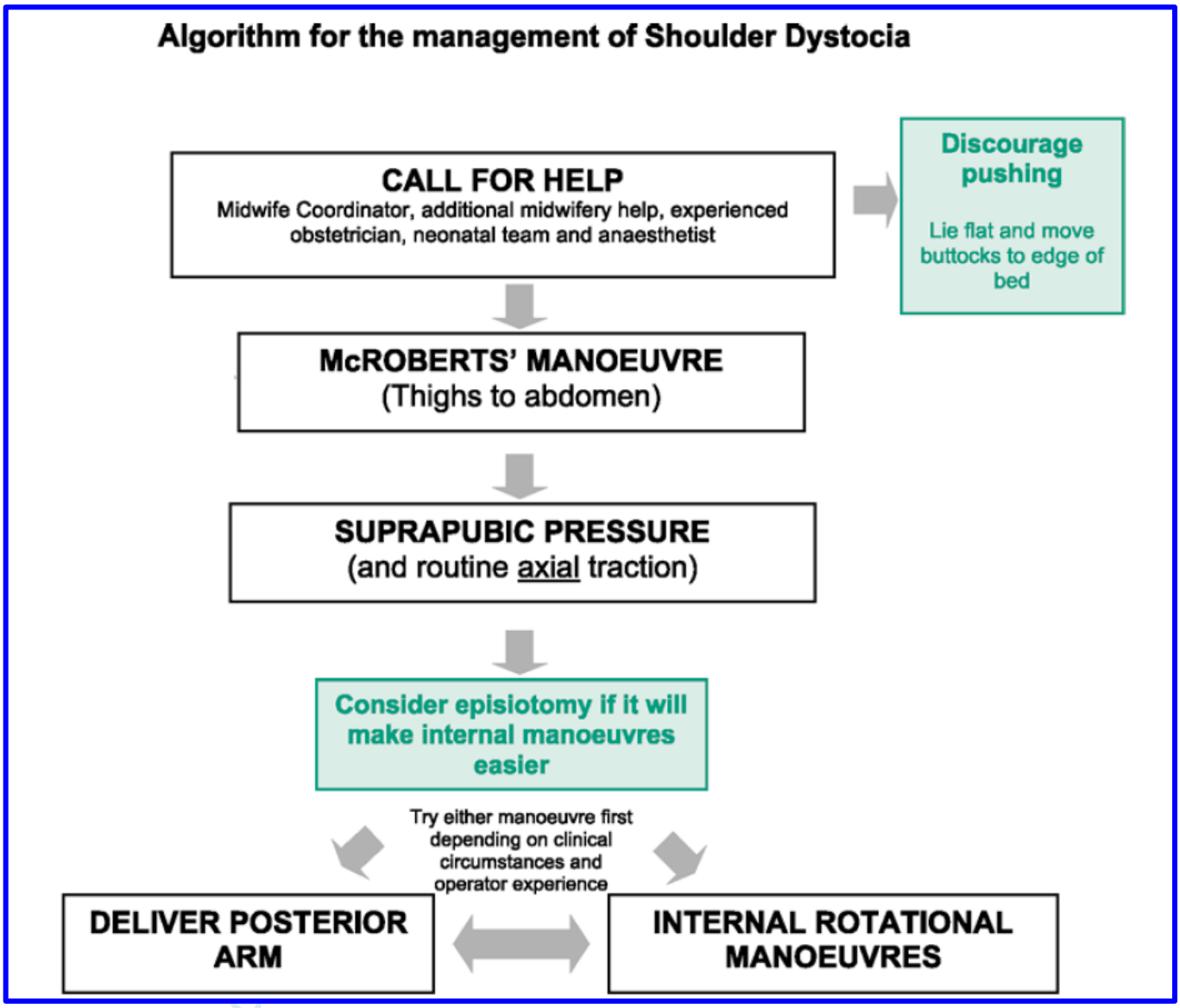
√ Fetal Macrosomia (> 4.5 kg).

√ Maternal BMI > 30.

√ Maternal DM.

√ Previous shoulder dystocia.

√ Prolonged labour.



Source: RCOG

Key 35

Hyperemesis Gravidarum

♦ **Severe/ prolonged Nausea and Vomiting in a pregnant woman between the weeks 8-12 of gestation (may continue up to 20 weeks).**

♦ **We fear** → **Dehydration** (dehydration could lead to acute kidney injury).

(Therefore → **IV fluid -normal saline 0.9% NaCl- is the first initial step**).

♦ **Look for** → ***Ketonuria, Tachycardia, weight loss, Sunken eyes, ↓ skin turgor, ↑" prolonged" capillary refill***

♦ **Possible complications**

√ **Wernicke's encephalopathy** (thus, we add thiamine later in the management).

√ Remember, with severe vomiting, **Mallory Weiss tear** may occur leading to hematemesis.

◙ **Management of Hyperemesis Gravidarum** (Important √)

F.A.S.T

Fluid → **A**ntiemetics → **S**teroids → **T**hiamine

♣ First step → **IV fluid** (rehydration) top options: **0.9% NaCl**, Hartman's solution.

Imp: **if low K^+ (<3.5)** → Give *NaCl 0.9% + 20-40 mmol/L potassium chloride (KCl).*

	We first need to care about **correcting dehydration** and **electrolyte imbalance**. This includes correcting the **low potassium** also by giving IV potassium chloride along with sodium chloride 0.9%. ♣ Second step → **Antiemetics**: √ **1st line**: "**zine**" family eg, **Cyclizine, Promethazine** √ **2nd line**: IV **Metoclopramide**, **Ondansetron** √ **3rd line**: Steroids (IV hydrocortisone). ♣ Thiamine should be then considered to prevent Wernicke's encephalopathy. **Important Note (Recently Asked):** If hyperemesis gravidarum has led to a low serum potassium, we would add potassium to the normal saline Give → IV sodium chloride 0.9% + potassium chloride. We first need to care about correcting dehydration and electrolyte imbalance. The next step if antiemetics failed to stop vomiting is to give thiamine.
Key 36	◙ It is recommended in the UK that **pregnant women** receive **IP** Vaccines → **Influenza** + **Pertussis** "Whooping cough" (*Cough and Sneeze vaccine = Whooping cough (pertussis) and Influenza*)

√ Note, Pertussis vaccine is not available alone, it comes as a part of the DPT vaccine (Diphtheria, Tetanus, Pertussis).

√ So, pregnant women in the UK are advised to receive **Influenza** and **DPT** vaccines (between **20-32 weeks** of gestation).

(Remember from the infectious disease chapter:

HIV patients should avoid: BCG and Yellow fever vaccines

And if CD4 is < 200, also avoid MMR vaccine).

Key 37

Stages of Labour

◙ **Stage 1**: **From** the onset of true labour **to** when the cervix is fully dilated.

√ In a primigravida, it typically lasts 10-16 hours. It has 2 phases:

♣ **Latent phase** = 0-3 cm dilation, normally takes 6 hours.

♣ **Active phase** = 3-10 cm dilation, normally **1 cm/hr (Acceleration of cervical dilatation)**

◙ **Stage 2**: **From** full dilation **to** delivery of the fetus.

◙ **Stage 3**: **From** delivery of fetus **to** when the placenta and membranes have been completely delivered.

√ Presentation → 90% of babies are vertex.

√ Head enters pelvis in occipito-lateral position.

√ The head normally delivers in an occipito-anterior position.

♣ Signs of labour include:

♦ Regular and painful uterine contractions.

♦ A show (shedding of mucous plug).

♦ Rupture of the membranes (not always).

♦ Shortening and dilation of the cervix.

Example 1,

A 28 YO pregnant ♀ at 39-week gestation presents with regular painful uterine contractions. Her waters broke 2 hours ago. Her cervix is 4 cm dilated.

The stage of labour → **Stage 1** (**active phase** since the dilatation is > 3cm).

Example 2,

A 28 YO pregnant ♀ at 39-week gestation presents with regular painful uterine contractions. Her waters broke 2 hours ago. Her cervix is 10 cm dilated and started pushing now

	The stage of labour → **Stage 2** **Stage 2:** From full dilation (10 cm) to delivery of the fetus. --- ◘ **Important**, If the labour is stuck (prolonged) at the first stage -latent phase- "when the cervix is 3 cm dilated with no further dilatation" "poor or no further progress": → perform **Amniotomy** "if the waters have not been broken yet" → give **IV drip Oxytocin "Syntocinon"**
Key 38	◙ Bilateral cystic masses on Pelvis US (+) Vaginal Bleeding in 1st trimester (+) Large for date uterus (± Hyperemesis = morning sickness) → think of **Hydatidiform mole "Molar pregnancy"** ♦ Also, **"snowstorm" appearance of mixed echogenicity →** **molar pregnancy.** Bilateral cystic masses = Large theca lutein cysts. **Hydatidiform mole** might be "***complete***" or "***partial***". If **complete**, the serum beta human chorionic gonadotropic (**B-hCG**) will be **extremely high**. This ↑↑↑ hCG can lead to hyperemesis.

Management of complete hydatidiform mole.

√ **Surgical evacuation** (Suction Curettage). ***The products of conception have to be histologically examined to*** confirm the diagnosis.

√ **Check hCG every 2 weeks**. (***No Pregnancy is allowed until hCG is back to normal***; therefore, strict contraception "barrier/ oral" is required.

◙ So, after surgical evacuation of hydatidiform mole

→ **measure b-hCG**

Note, Hydatidiform mole is one type of what's called **GTD** [**Gestational Trophoblastic Disease**].

Types of GTD [Gestational Trophoblastic Disease].

√ Complete hydatidiform mole.

√ Partial hydatidiform mole.

√ Gestational trophoblastic neoplasia (e.g. invasive mole, choriocarcinoma). As this type is malignant, chemotherapy is required.

	♣ **Again, the US findings in hydatidiform mole:** √ **Bilateral cystic masses** → represent large theca lutein cysts. √ **Snowstorm appearance of mixed echogenicity** → represent hydropic villi and intrauterine hemorrhage.
Key 39	**Tubo-ovarian abscess** (important √). ♦ It is an advanced complication of Salpingitis (PID). ♦ Tubo-ovarian abscess should be suspected if a female presents with: **lower abdominal pain** and **tenderness** with **High Fever** + **NO DISCHARGE**. ♦ **Additional hints**: (Sexually active and doesn't use barriers) → risk for chlamydia/ Gonorrhea → Cervicitis → PID → Tubo-Ovarian Abscess. If Tubo-ovarian abscess is suspected → **Pelvic Ultrasound**. Note that the results of endocervical/ high vaginal swabs would take days to return, whereas pelvic ultrasound can be immediately performed and may show the abscess.
Key 40	The vitamin that, if given during pregnancy, would **reduce the risk** of having a baby with **teratogenic effects** (**neural tube defect**) is → **Folic Acid** **Folic acid Dosage in Pregnancy**

◙ **The usual dose** → **0.4 mg** (**400 ug**) a day for **12 weeks** of pregnancy.

◙ **5 mg** a day for **12 weeks** of pregnancy if any of the following:

√ **DM**.

√ **BMI > 30**.

√ A pregnant woman taking **antiepileptics**.

√ Family history of **NTD** (Neural Tube Defect).

√ Previous pregnancy with **NTD**.

◙ **5 mg** for **the entire length of pregnancy** if:

√ Thalassemia or thalassemia trait.

√ Sickle Cell Disease (SCD).

Examples,

A pregnant female on antiepileptic medication:

→ **Give folic acid 5 mg daily for 12 weeks of pregnancy**.

A woman with DM planning to get pregnant:

→ **Give folic acid 5 mg daily for 12 weeks of pregnancy**.

	A woman with sickle cell anemia is planning to get pregnant: → **Give folic acid 5 mg daily for the entire length of pregnancy**.
Key 41	Rarely, **hysteroscopy** can cause **uterine** or **tubal perforation**. The patient would present with ***Abdominal pain***/ ***Rigidity***, ***Hypotension*** and ***Tachycardia*** due to intra-abdominal bleed. If this is the case, the "**initial**" next step would be → **Ultrasound abdomen and pelvis**. (Not CT! we cannot wait as Laparoscopy/ laparotomy might be the next step after US).
Key 42	Painless vaginal bleeding after sexual intercourse in the third trimester gestation ♀ + everything else is normal → **Placenta Previa**.
Key 43	**Rhesus negative pregnancy** √ A basic understanding of the pathophysiology is essential to understand the management of Rhesus negative pregnancies. √ Along with the ABO system, the Rhesus system is the most important antigen found on red blood cells. **The D antigen** is the most important antigen of the rhesus system.

√ Around 15% of mothers are rhesus negative (Rh -ve)

√ If a Rh -ve mother is pregnant with a Rh +ve child, a leak of fetal red blood cells may occur → this causes anti-D IgG antibodies to form in mother. This is called (Rhesus Isoimmunisation) "this ♀ has become sensitised".

√ In upcoming pregnancies, these Anti-D antibodies can cross the placenta and cause the baby to develop haemolysis (Anemia) due to [Rhesus incompatibility], and Hydrops Fetalis (Oedema).

√ That's why in the next pregnancies, the mothers are given prophylaxis Anti-D injections.

Important Note to Recall:

In a rhesus **negative** woman who has delivered a rhesus **positive** baby, it is crucial to → Administer anti-D immunoglobulin **as soon as possible** and always within **72 hours** of delivery (**even if** she had received it during pregnancy).

◙ *Example 1:*

A pregnant mother with Rh -ve has been found to have Rhesus Isoimmunisation (Anti-D Antibodies) developed due to her pregnancy with a Rh +ve baby in the past, we need to

→ [**Assess the fetal Middle Cerebral Artery "MCA" on Ultrasound**].

This allows us to estimate the fetal Hb (The severity of Anemia).

(there is a risk that this new baby is now having hemolysis "i.e. low Hb". Thus, we estimate the Hb by US of the middle cerebral artery).

√ If **MCA** assessment is **abnormal**

→ **Fetal cord blood sampling** (to quantify the Hb).

◙ *Example 2:*

A mother with (A -ve) blood group has just delivered her second baby who soon develops severe jaundice. She has never received any IM injections during her previous pregnancy.

The baby's cause of jaundice is likely → **Rhesus incompatibility**

(Rhesus isoimmunisation "Anti-D Antibodies" → Hemolysis → Jaundice).

This rhesus -ve mother has likely developed Anti-D antibodies (from the previous pregnancy with a rhesus +ve baby) and she did not receive IM prophylactic Anti-D immunoglobulins. So, the Anti-D antibodies crossed the placenta and attacked the fetal blood causing hemolysis and thus jaundice.

IMPORTANT

Anti-D immunoglobulin should be given as soon as possible (but always within 72 hours) of giving birth (sensitizing event).

◙ Causes of jaundice in the first 24 hrs

√ Rhesus haemolytic disease (Rh incompatibility)

√ ABO haemolytic disease (ABO incompatibility)

√ Hereditary spherocytosis

√ Glucose-6-phosphodehydrogenase (G6PD) deficiency.

***** The Rest is for Reading (For general medical knowledge) *****

Prevention

♦ Test for D antibodies **in all** Rh -ve mothers at booking.

♦ Give anti-D to **non-sensitised** Rh -ve mothers at 28 and 34 weeks.

♦ Anti-D is ***prophylaxis*** – once sensitization has occurred, it is irreversible.

Anti-D immunoglobulin should be given as soon as possible (but always within 72 hours) in the following situations:

- delivery of a Rh +ve infant, whether live or stillborn
- any termination of pregnancy
- miscarriage if gestation is > 12 weeks
- ectopic pregnancy
- antepartum haemorrhage
- amniocentesis, chorionic villus sampling, fetal blood sampling
- abdominal trauma

	Tests All babies born to Rh -ve mother should have cord blood taken **at delivery** for FBC, blood group & direct Coombs test Coombs test: direct antiglobulin, will demonstrate antibodies on RBCs of baby **Affected fetus** oedematous (hydrops fetalis, as liver devoted to RBC production, albumin falls) jaundice, anaemia, hepatosplenomegaly heart failure kernicterus **Treatment**: transfusions, UV phototherapy
Key 44	**Remember**, • **Endometriosis** → **Chronic** usually **cyclical pelvic pain** + **Dyspareunia** + Often (Dysuria and Dyschezia). • **Dx** → **Laparoscopy** (the gold-standard). • **Rx** → **NSAIDS** and **Paracetamol**/ a **trial of COCP**, IUS • **Surgical** laparoscopic excision of the endometrial tissues.

Key 45	◙ The risk for a female to get pregnant after **laparoscopic tubal sterilisation** is → **1:200** (**0.5%**) *In those who have undergone Laparoscopic Tubal Ligation, **1 out of 200** ladies may get pregnant.* ◙ The contraceptive method with the **lowest failure rate** is → **Etonogestrel contraceptive implant** **(pearl index = failure rate 0.05%)** (Subdermal implant e.g., Implanon, Nexplanon. Pearl index 0.05%). **Followed by** → **Mirena = levonorgestrel IUS** **(0.2%, even better than laparoscopic tubal ligation!)** **Both are even better than laparoscopic tubal ligation which has failure rate of 5%** ◙ The **Absolute** risk of ectopic pregnancy in Mirena users: → **None** *√ The "**Absolute** Risk" of **ectopic** pregnancy does not increase with using IUS or any other contraceptive methods.*

	*√ However, **Mirena** increases the "**Relative** Risk" of **ectopic** pregnancy. Meaning that if a female on IUD/IUS gets pregnant, she has an increased risk that this pregnancy is ectopic (1:20) (Relative Risk, not Absolute Risk).* ♣ **Confused**? **Just memorise that**: • **No** contraceptive method increases the **Absolute** Risk of ectopic pregnancy. • **Mirena** (**IUS**/**IUD**) increases the **Relative** risk of Ectopic pregnancy.
Key 46	**Remember**, ♦ Preeclampsia = HTN + Proteinuria **(> 0.3 g/24 hr)** after the 20th week of gestation. √ To control HTN → **IV Labetalol** ♦ Eclampsia = Tonic-clonic (grand-mal) seizure + Preeclampsia √ To control/ prevent seizure→ **MgSO4** (Magnesium sulphate) If another fit? → **a further IV bolus of MgSO4**

Key 47

Interpretation of Abnormal Cervical Smear:

• Cervical (Cervix) Cancer Screening:

√ (Pap smear – Cervical smear: Cytology, HPV)

√ 25-49 YO → every 3 years.

√ 50-64 → every 5 years.

Result	Management
Inflammatory changes WITHOUT Dyskaryosis	**Repeat Cervical Smear in 6 Months**.
Borderline or **mild** dyskaryosis	The original sample is **tested for HPV** • if **negative** the patient goes back to routine recall • if **positive** the patient is referred for **colposcopy**
Moderate dyskaryosis	Consistent with CIN II. Refer for **urgent colposcopy** (within 2 weeks)
Severe dyskaryosis	Consistent with CIN III. Refer for **urgent colposcopy** (within 2 weeks)
Suspected invasive cancer	Refer for urgent colposcopy (within 2 weeks)
Inadequate sample	**Repeat smear** – if persistent (3 inadequate samples) → **assessment by colposcopy**

CIN = Cervical Intraepithelial Neoplasia

Women who have been treated for CIN1, CIN2, or CIN3 should be invited **6 months** after treatment for '**test of cure'** repeat cytology in the community.

IMPORTANT,

If the cervical smear shows **inflammatory changes** **WITHOUT any dyskaryosis**

→ **Repeat cervical smear in 6 months** to ensure that the inflammation has resolved.

IMPORTANT,

If the cervical smear is normal, Swabs are negative for chlamydia and Neisseria, U/S is normal, cervix looks normal. However, there is abnormal intermenstrual bleeding for > 6-8 weeks

→ **Refer for colposcopy**.

In short, Abnormal cervical smear management:

◙ Inflammatory changes WITHOUT Dyskaryosis → **Repeat Cervical Smear in 6 Months**.

◙ Borderline or mild dyskaryosis → **The original sample is tested for (HPV).**

If positive → **colposcopy**.

◙ Moderate/ Severe dyskaryosis or suspected invasive cancer → **Urgent colposcopy** (within 2 weeks).

◙ Inadequate sample → **Repeat smear** – if persistent (3 inadequate samples) → **colposcopy**.

Important:

If cervical smear is **NORMAL**, but the patient has a **Positive Screen of high-risk HPV** (however, the cytology is normal)

→ **Re-screen for HPV in 12 months**.

If cytology is abnormal eg, borderline or worse → refer for colposcopy.

Cervical Cancer Screening Programme (UPDATED)

• The main aim of cervical screening is to detect pre-malignant changes rather than to detect cancer.

• The programme has undergone a significant evolution in recent years. For many years, the smears were examined for signs of dyskaryosis which may indicate cervical intraepithelial neoplasia - management was based solely on the degree of dyskaryosis.

• The introduction of **HPV (Human Papilloma Virus)** testing allowed patients with mild dyskaryosis to be further risk-stratified. As HPV is a strong risk factor, patients who are HPV negative could be delt with as having normal results.

• The NHS has **now moved to an HPV-first system**, ie, a sample is tested for high-risk strains of human papillomavirus (hr-HPV) first and cytological examination is only performed if this is positive.

◙ Who is screened for cervical cancer and how often?

A smear test is offered to all women between the ages of 25-64 years

√ 25-49 years: 3-yearly screening

√ 50-64 years: 5-yearly screening

Don't get confused, in (**Breast Cancer Screening**):

√ Mammogram is offered for all women aged 50-70 YO every 3 years.

√ If there is a strong family history or BRCA mutations → Mammogram should be carried out on Women aged 40-70 every year (Annually).

◙ **Special situations:**

- Cervical screening in pregnancy is usually delayed until 3 months post-partum unless missed screening or previous abnormal smears.

- women who have never been sexually active have a very low risk of developing cervical cancer therefore they may wish to opt out of screening

◙ **Interpretation of the Results (important √):**

◘ If high-risk HPV (HR-HPV) is **Negative** (-ve):

→ **Routine recall** (ie, 25-49 YO every 3 years ▌50-64 YO every 5 years).

◘ If high-risk HPV (HR-HPV) is **Positive** (+ve) → Perform **Cytology**:

√ If cytology is **normal** → Re-screen HR-HPV in 12 months.

√ If cytology is **abnormal** (borderline or worse) → Refer for colposcopy.

Example Scenario:

A 29 YO woman attends for routine cervical screen. Her last smear test 3 years ago was normal. Her current results show that she is a high-risk human papilloma virus **positive** (HR-HPV +ve). Therefore, cytology is done and it is **normal** (**negative**). What is the most appropriate management?

- She is **HR-HPV Positive** but her **Cytology is Negative**
- So, → Re-screen HR-HPV in 12 months. (See the interpretation above).
- If HR-HPV is +ve and Cytology is also +ve → Colposcopy referral.

Key 48

Termination of pregnancy

◙ Legal before the **24th** week of gestation in the UK.

In England, Scotland and Wales, a pregnant lady can legally have an abortion at up to 23 weeks and 6 days of pregnancy, in line with the Abortion Act 1967.

"This limit does not apply in cases where it is necessary to save the life of the woman, there is evidence of extreme fetal abnormality, or there is risk of serious physical or mental injury to the woman"

◙ Key points

√ Two registered medical practitioners must sign a legal document (in an emergency situation, only one is needed).

√ Only a registered medical practitioner can perform an abortion, which must be in an NHS hospital or licensed premise.

◙ For Reading,

The method used to terminate pregnancy depend upon gestation

♦ less than 9 weeks: mifepristone (an anti-progestogen, often referred to as RU486) followed 48 hours later by prostaglandins to stimulate uterine contractions

♦ less than 13 weeks: surgical dilation and suction of uterine contents

♦ more than 15 weeks: surgical dilation and evacuation of uterine contents or late medical abortion (induces 'mini-labour')

An ethical concept pops up :D

If a ♀ < 16 YO is pregnant and she is aware of all of the procedure's aspects and insists on terminating her pregnancy.

→ **her consent is valid**.

√ In a pregnant female below the age of 16 (12-15), their consent for termination of pregnancy is accepted "valid" if:

♦ *They understand all aspects of the procedure*.

♦ *Their physical or mental health is likely to suffer if they do not receive termination*.

Bear in mind that the pregnancy age should be less than 24th week!

Key 49

Some causes of Amenorrhea:

◙ **Absent uterus** → **everything is normal** (LH, FSH, Estradiol, Prolactin).

◙ **PCOS** → **↑LH and FSH (LH: FSH ratio is ≥ 2:1)** ▌normal or ↑ Estradiol.

	◙ **Premature ovarian failure** → **↑ FSH (in 2 separate occasions),** ↑ LH, ↓ Estradiol. ◙ **Turner's syndrome and Absent ovaries** → ↑ FSH, ↑ LH, ↓ Estradiol. ♦ One of the features of Turner's syndrome (45 XO) is ovarian failure (dysgenesis). Thus, estrogen is low (no working ovaries to release). The anterior pituitary secretes LH and FSH excessively to stimulate the release of the low estrogen. ♦If a young lady presents with **Primary Amenorrhea** (She has never begun to have menstrual cycles in the first place) and her LH, FSH, Estrogen are normal → Suspect **absent uterus e.g. congenitally as in Müllerian agenesis.**
Key 50	**The most important risk factors in the following cancers: (imp √)** ♦ **Ovarian** ca → **Family Hx**. ♦ **Urinary bladder** ca → **Smoking**. ♦ **Colorectal** ca → **Age**, followed by **Family Hx**. --- **RFs of Ovarian cancer:** **√ FHx**: mutation of BRCA 1 or BRCA 2 genes (Autosomal Dominant with incomplete penetrance) **√ Increase in ovulations** (**early menarche**, **late menopause**, **nulliparity**).

	√ Age. *As anything increases the ovulations will increase the risk of ovarian cancer, the things that decrease ovulations (e.g. Pregnancy and COCP) will reduce the risk of ovarian cancer (Protective against ovarian cancer).*
Key 51	◙ Any pregnant woman presents with features suggesting **DVT** "Deep Vein Thrombosis **(**e.g., **pain**/ **swelling of calf muscles)** → **start LMWH until DVT is ruled out.** **Both DOACs and Warfarin are contraindicated during pregnancy.** **Important Update on DVT Management:** **If not pregnant:** Now, treatment doses of DOACs (e.g. **Apixaban**, **Rivaroxaban**) have become **superior to Low Molecular Weight Heparin** as anticoagulants. Thus, in the exam, if both treatment dose of apixaban/rivaroxaban and low molecular weight heparin are within the options, pick the one with rivaroxaban/apixaban. **This is to say, in suspected DVT (Calf swelling, pain)**

→ **D-dimer, therapeutic dose of rivaroxaban, Leg Ultrasound in 24 hours**.

Note that Ultrasound of the affected leg is preferred to be done in **4 hours**. **However**, in most parts of the UK, this is usually not possible. Therefore, we request D-Dimer, start treatment dose of DOACs (e.g. apixaban or rivaroxaban) and arrange U/S of the leg in 24 hours.

Note that we start with a treatment dose, not a prophylactic dose!

Key 52

Neonatal Jaundice

♦ Jaundice in the **first 24** hrs is always **pathological**

◙ Causes of jaundice in the first 24 hrs

√ Rhesus haemolytic disease (Rh incompatibility).

√ ABO haemolytic disease (ABO incompatibility).

√ Hereditary spherocytosis.

√ Glucose-6-phosphodehydrogenase (G6PD) deficiency.

◙ Jaundice in the neonate from the 2-14 days is common (up to 40%) and usually physiological. It is more commonly seen in breast fed babies

♦ If there are **still** signs of jaundice **after 14 days of delivery**, a **prolonged jaundice** screen is performed, including:

	√ **conjugated and unconjugated bilirubin**: the most important test as a raised conjugated bilirubin could indicate biliary atresia which requires urgent surgical intervention √ **Direct antiglobulin test** (**Coombs' test**) √ **TFTs** (Thyroid function tests) √ FBC and blood film/ urine for MC&S and reducing sugars/ U&Es and LFTs **◙ Causes of prolonged jaundice** √ Biliary atresia √ Hypothyroidism √ Galactosaemia √ Urinary tract infection (UTI) √ Breast milk jaundice √ Congenital infections e.g. CMV, toxoplasmosis
Key 53	**Remember**, in a suspected case of ectopic pregnancy (e.g. lower abdominal pain and tenderness, +ve pregnancy test with empty uterus, cervical motion...) ♦ **If the patient is hemodynamically "stable"** → **Check Human chorionic gonadotropin (b-hCG)** - If b-hCG **< 1400** → **Wait and Observe** (unlikely ectopic pregnancy). - If b-hCG **> 1400** → **Proceed to Laparoscopy**

	♦ **If the patient is hemodynamically "unstable"** (e.g. **Hypotensive SBP < 90**) → **Urgent Laparotomy (Not laparoscopy)!** • Stable → Laparoscopy • Unstable → Laparotomy
Key 54	• **Eclampsia "seizures" can occur in the postpartum period.** • **Although they are very rarely seen without a Hx of HTN, Proteinuria (Preeclampsia), eclamptic fits can still occur solely!**
Key 55	**Heavy vaginal often irregular bleeding usually > 40 YO** → Suspect **endometrial hyperplasia** → **Transvaginal US** **Thick endometrium??** → **Hysteroscopy + Sampling (Biopsy)** ◙ On histology, If endometrial hyperplasia **without** atypia is confirmed ,

	The first line is: → **Mirena** (levonorgestrel -progesterone- intrauterine device) ***(Progesterone → regress the thickness that was caused by excess estrogen).***
Key 56	**SUDDEN** severe unilateral iliac fossa pain + Nausea + Vomiting ± Tender mobile mass → **Ovarian Torsion** (Refer her to gynaecology team to Take her to the theatre!)
Key 57	**< 40 YO** + Amenorrhea ± hot flushes and night sweats → suspect **POF** (**Premature ovarian failure**) **FSH should be measured in 2 separate occasions with 4 weeks apart.** **If ↑ in both → POF** → **Give HRT until the age of 51 Years**.
Key 58	**Fibroids** ♦ Fibroids are **benign** smooth muscle tumours of the uterus

♦ **Types** → Submucosal (projects into uterine cavity, thus the approach is hysteroscopic myomectomy)/ Subserosal (project into the outside of uterus, thus the approach is laparoscopic/ Intramural (within the muscle layer of the uterus)

♦ **The commonest type** → **Intramural**

♦ Fibroids are rare before puberty, develop in response to oestrogen, don't tend to progress following menopause.

♦ **Features**

√ More common in Afro-Caribbean women.

√ May be asymptomatic.

√ Menorrhagia.

√ Subfertility (unable to conceive -yet-).

√ May be palpable abdominal mass at the pelvis.

√ Bloating.

√ Lower abdominal pain: cramping pains, often during menstruation.

√ Urinary symptoms, e.g., frequency, may occur with larger fibroids.

♦ **Diagnosis** → **Transvaginal ultrasound**

♦ Points on Fibroid Management: √

♣ The best option if the female does not want to get pregnant currently and the fibroids are small and do not distort the uterine cavity + **Menorrhagia**

→ **Mirena (IUS)** "it shrinks fibroids, manage bleeding".

Caution, COCP, Mirena and depo-provera should be **avoided** if the woman has a Hx of pulmonary embolism, migraine with aura. We would then consider **uterine ablation** to control the symptoms of fibroids, bearing in mind that it can affect fertility.

♣ The best option if the female still needs to get pregnant (to save fertility)

→ **Myomectomy**

Q) Abdominal or **Hysteroscopic** myomectomy**??**

A) Well, if they are **subserosal** fibroids (Projecting into **outside** of the uterus)

→ "Abdominal = laparoscopic" approach.

If they are **submucosal** fibroids (Projecting into **inside** of the uterus)

→ "hysteroscopic" approach.

♦ Other options:

√ Hysterectomy → (the most successful option)

	√ Uterine artery embolization → (may save fertility as well; however, myomectomy is preferred and has more successful rate regarding fertility) √ Endometrial ablation (only if fibroids are < 3 cm in diameter. It does not save fertility, could be considered if other first line treatments such as Mirena are contraindicated e.g., Hx of pulmonary embolism, migraine with aura.). √ GnRH agonist → used prior to surgery to shrink the fibroids, facilitate their remove and to ↓ perioperative bleeding.
Key 59	**Q) which test is used to assess the ovulation in a female with 28 days regular cycles?** **A) Day 21 Progesterone** level (**mid-luteal progesterone level**, which is 1 week before the expected menstrual cycle) CAREFUL We assess the ovulation at the **mid-luteal progesterone** level. This occurs 1 week (7 days) before the onset of the menstrual cycle. So, we subtract (-7). If the cycles are at 28 days → (28-7 = day 21 progesterone). If regular at 31 days → (31-7 = day 24 progesterone). If regular at 35 days → (35-7 = day 28 progesterone).

Important!

If **progesterone levels are taken on an inappropriate day**

→ Wrong results with wrong interpretation (**will mask a possible anovulation**)!

Example,

A couple trying to conceive for 2 years. The wife has a regular 32-day menstrual cycle. What is the most appropriate test to **assess ovulation**?

32-7 = 25

So, → **Day 25 Progesterone**.

If the progesterone **> 30 nmol/L** → **there is ovulation** and thus no further biochemical assessment is required.

♦ **LH and FSH** are usually required if there are **menstrual irregularities**.

This is to rule out conditions such as **premature ovarian failure** (the FSH and LH will be high, specifically FSH will be high at 2 separate occasions with 4 weeks apart), **PCOS** (LH: FSH ratio is ≥ 2:1, both are high), **hypogonadotropic hypogonadism** (both LH and FSH are decreased).

Key 60	The safest antihypertensive in pregnancy → **Labetalol**
Key 61	Retained products of conception can lead to → uterine infection (**Endometritis**) √ "presents with ***fever*** and ***foul-smelling*** vaginal discharge ± **bleeding**" after 24 hours of delivery up to 12 weeks. "Note that fever is not always present" √ RFs → "***Emergency C-section***, ***prolonged labour***, ***after surgical termination of pregnancy.*** √ Ix → **High vaginal swab**. √ Rx → Co-amoxiclav → 1st line Rx of Endometritis in most UK hospitals. **However:** • The first line of Rx of endometritis by **WHO** is a combination of: Gentamicin + Clindamycin.

	• The first line of Rx of endometritis by **RCOG** is a combination of: Gentamicin + Cefotaxime + Metronidazole (In the exam, they will not give all true options; pick the given one of the above 3 -if asked-!).
Key 62	◙ **Severe placental abruption + IUFD → DIC → Postpartum hemorrhage**.
Key 63	**Ultrasound Findings** (important √)

◙ **Hydatidiform mole** **= Molar Pregnancy**	• Snowstorm appearance of mixed echogenicity • Bilateral cystic masses (Large theca lutein cysts)
◙ **PCOS**	Multiple follicles/ cysts
◙ **Dermoid Cyst**	• Iceberg tip sign • Flat-fluid level • Mostly, unilocular • Dermoid mesh

	◙ **Ovarian Endometrioma**	• Ground-glass appearance • Thick wall unilocular cyst • Chocolate cyst
	◙ **Ovarian Teratoma**	• Echogenic tubercle projecting into cyst lumen
	◙ **Tubo-ovarian abscess**	**Multilocular**, separations, irregular thick walls Echogenic debris in the pelvis

Key 64

Remember,

√ After evacuating hydatidiform mole and examining it histologically

→ measure **beta human chorionic gonadotropic** every 2 week until it goes back to normal.

√ As long as the hCG is elevated, no pregnancy should happen (contraception is indicated).

Key 65

Polycystic Ovarian Syndrome (PCOS)

◙ Features

♦ ↑ **LH** (**LH: FSH ratio is ≥ 2:1**).

♦ ↑ **Insulin** → insulin resistance → **Acanthosis Nigricans** (brown/ black skin hyperpigmentation on skin folds e.g. axilla, groin.

♦ ↑ **Androgen** (e.g., testosterone) → **Acne**, **Hirsutism**

♦ **Amenorrhea**/ **Oligomenorrhea**.

♦ **Infertility**/ **Subfertility**.

♦ **Obesity**.

◙ Investigation → Pelvis Ultrasound

◙ Management

♠ **Generally**, → Weight loss

♠ For **menstrual irregularity** → Weight loss, **COCP**, Levonorgestrel IUS (**Mirena**).

♠ For **infertility** → Weight loss, **Clomifene** citrate "first line" ± **Metformin**.

Other: laparoscopic ovarian drilling.

Important, even if the fertility is the issue, the "initial" step in the management of infertility is still → **Weight loss**

√ IF the main complaint is heavy irregular bleeding → Mirena or COCPs.

Key 66	**Vaginal spotting** is common after initiating hormonal contraception (e.g. COCP). ♦ if within the first 3 months → **Reassure**. ♦ if continues > 3 months → consider **shifting** to another contraceptive method.
Key 67	**Important Collection** ♦ **Preeclampsia** → **HTN** + **Proteinuria > 0.3** g/24 hr after **20th week** gestation. ♦ **Gestational Hypertension** → **New hypertension** after **20th week** gestation **without** significant proteinuria (ie, proteinuria **< 0.3** g/24 hr). **Important**: Sometimes HTN + proteinuria can present and it is still "gestational hypertension" rather than "Pre-eclampsia". When to consider it Pre-eclampsia? HTN after 20th week of gestation + one of these 3: √ Significant Proteinuria (24-hour urine protein **> 0.3 g/24 hour** or: √ Protein creatinine ratio (PCR) **> 30** mg/mmol or: √ Albumin creatinine ratio (ACR) **> 8** mg/mmol. "*These numbers are important to be memorised*" ♦ **Eclampsia** → Preeclampsia + Fits (Seizures) "fits can may solely"

♦ **Hyperemesis gravidarum** → **Severe/ prolonged Nausea and Vomiting in a pregnant woman between the weeks 6-12 of gestation (may continue up to 20 weeks).**

√ **Example**, Female presents at 25 weeks gestation with HTN and proteinuria (0.**5** g/ 24hr) → ***Preeclampsia***.

√ **Example**, Female presents at 25 weeks gestation with first time HTN and proteinuria (0.**2** g/ 24hr) → ***Gestational hypertension***.

√ **Example**, Female presents at 25 weeks gestation with first time HTN and proteinuria +2 and protein creatinine ratio 10 mg/mmol

→ ***Gestational hypertension***.

◙ **Quick points on management:**

√ **Preeclampsia**, **gestational HTN** → **Labetalol**

** If Asthmatic (even if well controlled asthma), avoid labetalol (beta blocker is contraindicated in asthma)

Instead, give **nifedipine**. Imp √

√ **Eclampsia** → **Magnesium sulphate** (for *ongoing* fits and to *prevent* fits). *Further bolus can be given*.

√ **Hyperemesis gravidarum** → **IV fluids** (for dehydration) → **Antiemetics** (cyclizine, promethazine), still? **IV antiemetics** (ondansetron, metoclopramide).

Key 68

Common Tumour Markers

Breast Cancer	**CA 15-3**
Ovarian Cancer	**CA 125**
Pancreatic Cancer	**CA 19-9**
Colorectal Cancer	**CEA "Carcinoembryonic Antigen"**
Prostatic Cancer	**PSA "Prostate Specific Antigen"**
Liver (HCC)	**AFP "Alpha-fetoprotein"**
Teratoma (e.g. of testicles, ovaries)	**AFP "Alpha-fetoprotein"**
Testicular Seminoma	**LDH (Lactate Dehydrogenase)**

♦ Any pelvic/ adnexal mass in a postmenopausal woman should raise suspicions of **ovarian cancer** as the ovaries at this age should be atrophied.

♦ **RFs of Ovarian cancer:**

√ FHx: mutation of BRCA 1 or BRCA 2 genes. (the most important RF).

	√ increase in ovulations (*early menarche*, *late menopause*, *nulliparity*). √ Age. ♦ **Protective factors** → ***Pregnancy***, ***COCP***. ♦ **Other features** → chronic Abdominal discomfort, Bloating, Palpable pelvic/ adnexal mass (non-tender, solid, irregular, fixed), early satiety, ↑ urinary urgency/ frequency. **Initial Ix** → **Ca 125** **Q) A 60 YO woman came to a GP with a 6-month history of abdominal distension + early satiety but no palpable mass on examination is detected and no weight loss, no anorexia, CA 125 is done and found 90 (normal < 25).** • The first "initial" Next step → **Urgent Ultrasound**. If U/S of abdomen and pelvis is suggestive of ovarian cancer, the GP would → **Refer the patient to a gynaecologist urgently**.
Key 69	**Important DDx of Vaginal Conditions** ♣ Dyspareunia ± dysuria + frequency in > 51 YO (± vaginal itching/ dryness) → suspect **Atrophic vaginitis** (Topical estrogen cream)

	♣ **Itchy**, **tender white plaque** of vulva (becomes itchier at night) → **Lichen Sclerosus** (√ Topical steroids ▌√ Follow up). ♣ **White Thick** discharge → **Candida (Vaginal Thrush)**. (Topical clotrimazole). ♣ **Yellow-greenish** offensive discharge + vaginal **itching** ± **Strawberry** Cervix ± pH > 4.5 → **Trichomonas Vaginalis (Trichomoniasis)**. (Metronidazole) ♣ **Offensive** discharge **Without itching** ± **fishy** smell ± pH > 4.5 → **Bacterial Vaginosis (Gardnerella Vaginalis)**. (Metronidazole)
Key 70	**Pelvic congestion syndrome** (also known as pelvic vein incompetence) ♦ A chronic medical condition in women caused by **varicose veins in the lower abdomen**. ♦ The condition causes **chronic pelvic pain**, often manifesting as a constant dull ache, which can be **aggravated by standing.** ♦ Women with this condition experience a constant pain that may be dull and aching, but is occasionally more acute. The pain is worse at the end of the day and after long periods of standing, and sufferers get relief when they lie down.

	♦ The pain is worse **during or after sexual intercourse**, and can be worse just **before the onset of the menstrual period "Premenstrually"**. ◙ Chronic pelvic pain, worsens by standing, worsens premenstrually ± Post-coital ache (deep dyspareunia). → **Pelvic congestion syndrome** (**it is non-organic; thus, Ultrasound and laparoscopy are usually unremarkable**)
Key 71	**Premenstrual syndrome (PMS).** ◙ Premenstrual syndrome describes the emotional and physical symptoms that women may experience prior to menstruation. ◙ Common symptoms → *anxiety* ▌*stress* ▌*fatigue* ▌*mood swings*. ◙ Unless contraindicated, **Combined Oral Contraceptive Pills (COCP)** are useful to alleviate the symptoms of premenstrual syndrome by preventing ovulation.
Key 72	**Remember,** • Hx of DVT contraindicates the use of COCP.

	• **Other important RFs of COCP use**: *obesity*, *smoking*, *HTN*, *Hx of thromboembolism*, *migraine with aura*, *postpartum*. • The best option for a woman with Menorrhagia + Fibroids that do not distort the uterine cavity → **Levonorgestrel-releasing intrauterine system (Mirena).**
Key 73	**Remember**, In recurrent miscarriages mainly in the first trimester → Suspect **antiphospholipid syndrome**. To prevent further miscarriage → **LMWH + Aspirin**
Key 74	There is a difference between menopause and perimenopause: √ **Menopause** → 12 consecutive months have passed since the last menstrual cycle near the age of 50. √ **Perimenopause** → still menstruating but may be irregularly or heavily near the age of 50. ± Other vasomotor symptoms.

Key 75

Options for Treating PID

(Note that it differs based on local guidelines. These are common examples)

◙ Outpatient → (OM)

- Oral **Ofloxacin** + oral **Metronidazole**

or

- Intramuscular **ceftriaxone** + oral **doxycycline** + oral **metronidazole**

◙ Inpatient → (CDM)

Ceftriaxone + Doxycycline + Metronidazole

Note that a failed trial of at home-management (outpatient) e.g. due to non-compliant patient necessitates admission and treatment with

IV ceftriaxone + Oral Doxycycline.

If a compliant patient received full outpatient management and presents with same PID features with higher fever

→ suspect tubo-ovarian abscess and do Pelvis Ultrasound to confirm Dx.

After finding a mass on US → Laparoscopy would be done.

Key 76	**Remember**, • **Leakage of urine on coughing/ laughing/ sneezing:** → **Stress incontinence** (weak pelvic floor muscles mainly due to multiparity) √ **Pelvic floor exercise** (First-line). √ If failed → Surgical **retropubic mid-urethral tape =** (**Free-tension vaginal tape**) √ If surgery is not possible → **Duloxetine**. --- • **Leakage of urine when feeling the desire to urinate (wet themselves before making it to the bathroom), (difficult to resist and defer urine):** → **Urge incontinence** (= Overactive detrusor muscle). √ **Bladder retraining** (First-line). √ **Antimuscarinic** (e.g., **Oxybutynin**, **Tolterodine**) [Second-line].
Key 77	**Do not forget the features of Molar Pregnancy:** √ Large for date uterus. (with +ve pregnancy test). √ Hyperemesis (morning sickness): due to excessive ↑hCG.

	√ **Vaginal bleedings in the first trimester**. √ **passage of vesicles through vagina**. ◙ Vaginal Bleeding in 1st trimester (+) Large for date uterus (± Hyperemesis = morning sickness) → think of **Hydatidiform mole "Molar pregnancy"** → **Ultrasound** Snowstorm appearance ▌Bilateral cystic masses (theca lutein cysts) → **Surgical evacuation** → **histological examination of the evacuated products** → **measure hCG 2 weekly and contraceptive methods until hCG becomes normal**.
Key 78	**Important**, As a junior doctor, never prescribe any pain relief for a pregnant woman other than **Paracetamol** irrespective of site and severity! If other more potent analgesics are needed, consultants should be involved.
Key 79	◙ **Note**: Chlamydial infection is the most common Sexually Transmitted Infection "STI" in the UK. It is cause by Chlamydia Trachomatis. ◙ An 18 YO ♀ with new sexual partner presents with:

Vaginal Discharge, Post-coital bleeding, Red and Inflamed vulva and cervix, tender pelvis but non-tender abdomen.

√ The likely Dx → **Chlamydial Cervicitis**.

The discharge is usually non-offensive (unlike Gardnerella vaginosis and Trichomonas vaginalis)

√ Rx? →

♦ **Chlamydia**

◙ **1st line** → Doxycycline 100 mg BID for 7 Days.

√ The likely cause in this case? → infection due to a **new partner**.

♣ Why not Cervical Ectropion?

Cervical Ectropion presents only with post-coital bleeding. No other problems. Resolves spontaneously but if treatment is required → Cauterising with silver nitrate.

◙ A 22 YO ♀ presents with Vaginal Discharge, Post-coital bleeding, intermenstrual bleeding. She is sexually active and does not use any form of contraception.

The most appropriate investigation → **Endocervical swab**.

Another correct answer → **Vulvovaginal swab** (not vaginal swab).

	√ This is likely a case of cervicitis (either due to Chlamydial or N. Gonorrhea). ***√ we perform → Endocervical swab or vulvovaginal swab.*** ***√ Whether this is a case of cervicitis or PID, we shall screen for Chlamydia and N. Gonorrhea in both cases.*** ***√ Cervicitis if left untreated → ascending infection → Salpingitis (PID) (similar origin)*** ***√ Pelvis Ultrasound is needed if pelvic abscess or tubo-ovarian abscess is suspected where there has become lower abdominal tenderness, higher fever, prolonged untreated or failed treatment of PID or Hx of PID (as seen previously).*** **When to use Vaginal swab?** If recurrent symptoms after treatment, failed treatment, in pregnancy, postpartum, post-abortion, post-vaginal instrumentation
Key 80	♦ In normal pregnancy, the fetal heart is seen on Ultrasound at **6 weeks**.

	♦ In a distressed fetus, suspected threatened miscarriage, vaginal bleeding after week 6 with closed cervix, the "**next**" step to determine the **fetal viability** is → **Transvaginal Ultrasound**.
Key 81	**Missed (Lost) intrauterine device threads** (**cannot be seen on speculum examination**)? → **"Transvaginal" Ultrasound**. (better than abdominal US). **Still cannot locate the IUD?** → **Abdominal X-ray**.
Key 82	**Important**, ◙ **Macrolides** e.g. (Erythromycin) are **safe** during pregnancy. ◙ **Trimethoprim** is Anti-Folic acid; thus, it is **contraindicated** in **the first trimester** of pregnancy. It has risk for **teratogenicity** (Neural Tubal Defect). If used, 5 mg Folic Acid should be given. ◙ **Nitrofurantoin** is contraindicated (**Near term**), risk of **Neonatal hemolysis**.

	◙ **Ciprofloxacin** is better **avoided** during pregnancy (risk for fetal musculoskeletal problems, arthropathy). *Near term = 1 week before and 1 week after the estimated date of delivery.* ***What alternatives for UTI that are safe in pregnancy?*** ***Amoxicillin***, ***Cefalexin***, ***Macrolides*** Note: ***Trimethoprim and Methotrexate are Anti-folate medications.***
Key 83	♦ **First trimester** (up to 13-14 weeks), **do not** give **Trimethoprim**. ♦ **Near term** = 1 week before and 1 week after the estimated date of delivery. **Do not** give **Nitrofurantoin**. **Example (1)**, A 31 YO female with a 5-week amenorrhea was found to be pregnant. She has dysuria, frequency and lower abdominal pain. Urine dipstick is +ve for nitrates and leucocytes. She received a 3-day course of Nitrofurantoin; however, the symptoms persist. She is penicillin allergic (rash develops after penicillin intake). Which one of the following antibiotics is appropriate for her case?

• **Nitrofurantoin**? → **Nope**! 😠 She has already tried it and has not improved. (perhaps the organism is resistant to nitrofurantoin). (Remember, Nitrofurantoin is contraindicated Near term).

• **Trimethoprim**? → **Nope**! 👿 It is contraindicated in the first trimester as it is folic antagonist (teratogenic). (however, if no alternative, we could use it with adding 5 mg Folic acid).

• **Ciprofloxacin**? **Nope**! 😑 It is better avoided during pregnancy (arthropathy risk).

• **Amoxicillin**? **Nope**! 😤 She is allergic to penicillin.

• **Co-amoxiclav**? **Nope**! 😓 Co-amoxiclav is (Amoxicillin + Clavulanic acid), and she is allergic to penicillin.

• **Cefalexin** → **Yup**! 🕺 😁 💃 It is safe in pregnancy, Not penicillin :D

Remember that in such a case, we need to order **urine culture and sensitivity** to identify the exact causative organism and to which type of antibiotics it is sensitive.

For your knowledge,

Note that cefalexin is a first-generation **cephalosporin**. In every 10 patients who are allergic to penicillin (eg amoxicillin), 1 would be allergic to cephalosporin "Cross-reactivity". Therefore, we should avoid cephalosporin if the patient is severely allergic to penicillin (e.g. life-threatening anaphylaxis). In the above example, it is just rash (allergy) and the possibility of being allergic to cephalosporin is 1:10.

Example (2),

A 32-year-old woman presents to the clinic with complaints of dysuria, urgency, and suprapubic pain. She is currently 9 weeks pregnant and was diagnosed with a urinary tract infection three days ago. Initial treatment with nitrofurantoin was initiated; however, her urine culture results, received today, show resistance to nitrofurantoin and penicillin. The culture is sensitive to cefuroxime, ciprofloxacin, and trimethoprim. Which antibiotic should be prescribed next?

A) Ciprofloxacin.

B) Trimethoprim.

C) Continuing nitrofurantoin.

D) Cefuroxime.

E) Amoxicillin.

Answer:

For a pregnant woman with a UTI resistant to the initial treatment and considering the antibiotic sensitivities, it is crucial to choose an antibiotic that is both **effective** and **safe** during pregnancy.

• **Ciprofloxacin**: This antibiotic is generally avoided during pregnancy due to concerns about potential adverse effects on the developing fetus, such as musculoskeletal problems. Therefore, it should not be the first choice.

• **Trimethoprim**: Since trimethoprim is a folate antagonist, it is generally not recommended during pregnancy, especially in the first trimester, due to the risk of neural tube defects.

• **Continuing nitrofurantoin**: Although nitrofurantoin is considered **safe** during pregnancy (unless near term), the culture shows **resistance** to nitrofurantoin. Thus, continuing this antibiotic would not be effective and is not recommended.

• **Cefuroxime**: This antibiotic is a second-generation cephalosporin and is considered **safe** for use during pregnancy. It is effective against a broad spectrum of bacteria and is a good option given the sensitivity results.

• **Amoxicillin**: As mentioned, amoxicillin is a penicillin antibiotic, and since the culture shows resistance to penicillin, it would not be effective in this case.

Recommended Answer → D) Cefuroxime.

Cefuroxime is safe for use during pregnancy and is effective against the bacteria causing the UTI in this patient.

Key 84

P450 Enzyme Inducers (CRAP GPs)	P450 Enzyme Inhibitors (SICK-FACES.COM)
Decreases Warfarin effect → ↓INR	**Increases** Warfarin effect → ↑ INR
****Important √**	If used with COCP, no need to change anything.

	If used with **COCP**, ***an additional contraceptive method is required*** (e.g. Depo-Provera, IUS, IUD) as these enzyme inducers **weaken** the effect of COCP and POP.	
	• **C**arbamazepine • **R**ifampin • **A**lcohol "Chronic" • **P**henytoin • **G**riseofulvin • **P**henobarbital • **S**ulphonylureas	• **S**odium Valproate. • **I**soniazid. • **C**imetidine. • **K**etoconazole. • **F**luconazole. • **A**lcohol (Acute drinking). • **C**hloramphenicol. • **E**rythromycin (Macrolides: **Clarithromycin**) • **S**ulfonamides. • **C**iprofloxacin. • **O**meprazole. • **M**etronidazole
	Example 1, A lady on COCP has been prescribed doxycycline to manage Lyme disease. What should be done regarding her contraception?	

→ **Continue COCP with no additional contraceptive methods**.

Doxycycline is **not** hepatic enzyme **inducer**; thus, the effectiveness of COCP will remain the same. Hence, **no change is required**.

Example 2,

A lady on COCP has been prescribed Anti-TB medications. What should be done regarding her contraception?

→ **Consider additional/ changing contraceptive method e.g. Mirena, Depo-Provera.**

√ **Remember**, **Rifampin** (which is one of the hepatic enzyme **inducers**) is one of the Anti-TB medications that she is going to receive.

√ Hepatic enzyme inducers (e.g. Rifampin, Carbamazepine, Phenytoin…) **weaken** the effectiveness of the COCP and POP. Therefore, other contraceptive method is required!

√ Note that even after finishing the course of hepatic enzyme inducers, a female would still need to continue using the safe contraceptive method for additional 4-8 weeks.

◙ **Remember**, the four Anti-TB drugs are the same in pregnancy.

	√ (RIPE) → Rifampicin, Isoniazid, Pyrazinamide, Ethambutol √ These are **not**-contraindicated during pregnancy. ◙ **Remember**, **Streptomycin should be avoided during pregnancy** (Harmful to fetus)
Key 85	***A quick recap*** **The following medications are contraindicated in pregnancy:** √ **Trimethoprim** → CI in 1st trimester. √ **Nitrofurantoin** → CI Near term √ **Ciprofloxacin** → Better avoided in pregnancy (a possible arthropathy risk). √ **Streptomycin** √ If **pregnant** and presents with **chlamydial cervicitis** → give **Erythromycin** instead of Doxycycline or Azithromycin . ♦ Enzyme **inducers** → (↓ INR; ↓ Warfarin effect), (↓ COCP, POP effect)

Key 86	**Primary amenorrhea** + **Cyclical pain** ± **mass at lower abdomen** → **Hematometra**. √ **1ry amenorrhea** = she has never had menses before. √ **Hematometra** = Accumulation of blood within uterus (e.g. due to imperforate hymen or transverse vaginal septum.
Key 87	**Remember**, PID is common in young age females (<25 YO) as they are usually more sexually active. Lower abdominal pain, Dyspareunia, Dysuria, Vaginal discharge → **endocervical swab**.
Key 88	**Secondary PPH** √ Occurs between 24 hours – 12 we—s after delivery. √ due to **retained placental tissue** or **endometritis**. If ♀ with 2ry PPH, the placenta was completely delivered, then → suspect **endometritis**. Especially if there is fever even if mild. → Order **high vaginal swab**.

	However, if one occasion of vaginal bleeding that is similar to menstrual blood occurs after 4 weeks, no fever, no irregular bleeding, no offensive smelling lochia or other complaints, this might be her normal period has resumed → **Reassure**. **Remember**, **Primary PPH** √ Occurs within the first 24 hours after delivery. √ Most common cause is **uterine atony** (90% of cases). Other causes include genital **trauma** and clotting factors.
Key 89	◙ **What if MgSO4 overdose develops while managing eclamptic seizure (e.g. loss of deep tendon reflexes, Nausea, Vomiting, Confusion, hypotension)?** 1) **Stop** MgSO4. 2) Request serum MgSO4 levels urgently. 3) Give **Diazepam** (**only if there is still ongoing seizure**). 4) Give **Calcium gluconate** (as an **antidote for MgSO4**).

Key 90	◙ **Important**! √ **Normal ultrasound does not exclude endometriosis**! √ Remember, the gold-standard in endometriosis is → **Laparoscopy**. **5 Ds of Endometriosis** • **D**ull chronic pelvic pain. • **D**ysmenorrhea (Painful Periods). • **D**yspareunia (Painful intercourse). • ± **D**yschezia (Painful Defecation). • ± **D**ysuria.
Key 91	**Remember**, *Stages of Labour* ◙ **Stage 1**: From the onset of true labour to when the cervix is fully dilated. √ In a primigravida, it typically lasts 10-16 hours. It has 2 phases: ♣ **Latent phase** = 0-3 cm dilation, normally takes 6 hours. ♣ **Active phase** = 3-10 cm dilation, normally 1 cm/hr (Acceleration of cervical dilatation)

	◙ **Stage 2**: From full dilation to delivery of the fetus. ◙ **Stage 3**: From delivery of fetus to when the placenta and membranes have been completely delivered. **Examples**, ◘ Cervix 3 cm → 1st stage – latent phase ◘ Cervix 4 cm → 1st stage – active phase ◘ Cervix fully dilated 10 cm and started pushing → the beginning of 2nd stage.
Key 92	**Remember**, ◙ **Stress incontinence** (leakage during coughing, laughing, sneezing) √ First line → **pelvic floor exercise**. √ Second line → Tension free vaginal **tape** or (Duloxetine) if no surgery possible. ◙ **Urge incontinence = Detrusor overactivity** (when feels like to pee, leakage occurs). First line → **Bladder training.** Second line → **Antimuscarinics** (e.g. immediate-release oxybutynin).

Key 93

Note, **Lactulose** (osmotic laxative) is preferred over Senna (stimulant laxative) **in Pregnancy**.

Dealing with Constipation

- **Impacted stool** → **phosphate enema**. "important".

  However, if young, healthy, no comorbidities, try Glycerol suppositories first. "important**".**

- **Hard stool** → **stool softeners**.

The order of interventions for constipations in general are as follow:

- **High fibre (residue) diet + ↑ fluid intake, exercise (conservative)**
- **Senna (Stimulant Laxatives).**
- **Lactulose or Macrogol (Osmotic "Bulk-forming" Laxatives)**
- **Add a prokinetic agent (such as domperidone, metoclopramide, erythromycin)**
- **Dantron.**
- **Seek specialist advice.**

N.B. Senna is tried before lactulose in general.

However, in pregnancy, we use Ispaghula "1st line" or lactulose "2nd line" as Senna might ↑ abdominal discomfort.

	Important **In short, for constipation, after trying conservative management (increase fluid intake and high-fibre diet and exercise), the first line is as follows:** ♦ In general → Senna (stimulant laxative). ♦ In pregnancy: ILS √ First line → Ispaghula husk (bulk-forming laxative). √ Second line → Lactulose (osmotic laxative). √ Third line → Senna (stimulant laxative).
Key 94	◙ Severe placental abruption + Intrauterine fetal death → **DIC: Disseminated intravascular coagulopathy** → Postpartum hemorrhage.
Key 95	**Valid regimens for PID management:** ◙ **Outpatient → (OM)** • Oral **Ofloxacin** + oral **Metronidazole** **or**

	• Intramuscular **ceftriaxone** + oral **doxycycline** + oral **metronidazole** ◙ **Inpatient → (CDM)** **Ceftriaxone + Doxycycline + Metronidazole** ***Note that metronidazole is essential in all examples.***
Key 96	**The new guidelines state that if a pregnant woman > 20-week pregnancy has:** √ Proteinuria 2+ or more → **urgent referral to secondary care (same day within 24 hrs)** even if normotensive. √ Proteinuria 1+ and normotensive → **reviel and reassess in 1 week In a GP clinic**. **Example (1):** **If a pregnant lady at > 20-week gestation presents with proteinuria (+3) and mild Hypertension (140/90 to 149/99)** → **Mild preeclampsia**

→ **Refer for a Same Day Assessment in the maternal unit**.

There is proteinuria along with the mild hypertension. **We cannot neglect a case of preeclampsia whatever severity it has**. In pregnancy, we manage any preeclampsia carefully! Remember, it could complicate to eclampsia and thus seizures and could complicate the pregnancy and necessitate urgent delivery.

Example (2):

If a pregnant lady at > 20-week gestation presents with proteinuria (+1) and Normal blood pressure

→ **Review (follow up and reassess) in 1 week in the GP surgery clinic**.

Gestational Hypertension → **New hypertension** after **20th week** gestation but **without** significant proteinuria (ie, proteinuria **< 0.3** g/24 hr).

- **If mild**: 140/90 to 149/99 → Observe, **no medication is needed**. (+9)

	• **If higher**, Give **Oral Labetalol** "First-Line". (Labetalol should be avoided in asthmatics) Alternative → Nifedipine. If contraindicated → methyldopa.
Key 97	**Remember**, "**Pelvic Inflammatory Disease e.g., chlamydia**" has a great risk for ectopic pregnancy. (**Major**) **Other risk factors** → Endometriosis/ assisted pregnancy/ tubal ligation/ previous ectopic pregnancy/ IUD (relative not absolute risk).
Key 98	**Remember**, **In hydatidiform mole, barrier contraception should be used until hCG is back to normal and follow up is complete.**
Key 99	◙ The routine blood tests performed at antenatal booking (usually by 10 weeks) **HIV ▌Hepatitis B ▌Syphilis screen (**important √**)**

	◙ **Others**: FBC (for anemia), Blood group, Rh, Hb disorders (Haemoglobinopathies). --- To clear the confusion that may occur: **√** The **vaccines** recommended for pregnant women in the UK: • Influenza. • Pertussis. **√** The **screening** at the antenatal visit: • Syphilis. • HIV, HBV. • Others: FBC, Hb disorders, Rh, blood group Do not confuse Pertussis VS Syphilis. Both were asked before! The vaccine → Pertussis. The Screening → Syphilis.
Key 100	**Abnormal cervical smear management:**

	◙ Inflammatory changes WITHOUT Dyskaryosis → **Repeat Cervical Smear in 6 Months**. ◙ Borderline or mild dyskaryosis → **The original sample is tested for (HPV).** If positive → **colposcopy**. ◙ Moderate/ Severe dyskaryosis or suspected invasive cancer → **Urgent colposcopy** (within 2 weeks). ◙ Inadequate sample → **Repeat smear** – if pe—istent (3 inadequate samples) → **colposcopy**.
Key 101	**Remember**, in **Eclamptic seizures (fits),** we start with a loading dose, which is → **4 grams MgSO4 in 100 ml 0.9% Normal Saline infusion pump over 5-10 min** MgSO4 regimen **(important √)** **√ Loading dose of MGSO4**: **4 g in 100 ml 0.9% NS by infusion pump over 5-10 min**. (important) **√ Followed by 1 g/hour (maintenance) for 24 hours** after the last seizure.

	√ **Recurrent seizure**: either give **a** **further 2 g MgSO4 bolus** **or** **↑ the infusion** rate to 1.5-2 g/hour (instead of 1 g/hour)
Key 102	• Many of the females who recently started on **Depo-Provera** (Progesterone-only-injections) or **Mirena** (IUS) tend to initially have **bleeding more days than usual** and **vaginal spotting between cycles**. Most females become amenorrheic after 1 year of use. Therefore → **Reassure**.
Key 103	**2 Important Scenarios on Managing Menstrual Cycles Conditions:** **Scenario 1):** Young non sexually active female with dysmenorrhoea, menorrhagia and irregular cycles. What is the most appropriate management? → **COCPs**. **Scenario 2):** A 23-year-old sexually active female was on COCPs. In the last few months, she stopped COCPs as she wishes to conceive (ie, to get pregnant). Since then, she started to have painful menstrual cycles (pains in her pelvis at the onset of her menstrual periods that lasts for 48-72 hours). What is the most appropriate management? → **Mefenamic acid**.

OBS/GYNE Notes to Remember:

√ **Menorrhagia** = Heavy menstruation | √ **Dysmenorrhea** = Painful menstruation |

√ **Metrorrhagia** = Irregular menses

◙ **In a young ♀, Not sexually active** (doesn't requires contraception)

♦ **Menorrhagia only** (Heavy menstruation) → **Tranexamic acid**

♦ **Menorrhagia** + **Dysmenorrhea** (painful cycles) → **Mefenamic acid**.

(*Mefenamic acid is a NSAID, not hormonal, not affecting fertility ie, does not cause contraception. Other NSAIDs can be used as well if the case is just dysmenorrhea ie, painful menstrual cycles*).

♦ **Metrorrhagia** (**irregular menses**) ± **Menorrhagia/ Dysmenorrhea** → **COCP**.

Menorrhagia (heavy menstruation) only → Tranexamic acid

Once dysmenorrhea (Painful cycles) → Mefenamic acid (a NSAID).

Once metrorrhagia (irregular menses) → COCPs

◙ **In a sexually active ♀ (requires contraception) + menorrhagia/ Dysmenorrhea/ or fibroids not distorting the uterine cavity**

♦ **The first line** → **Mirena (IUS) = Levonorgestrel Intrauterine System**

Q) What if Mirena is Contraindicated (eg, the ♀ < 20 YO or no long contraception is wished)?

	If **No** contraindications to COCP (eg, smoking, obesity, Hx of thromboembolism) → **COCPs** (or POP or implants). • If uterine cavity distortion → **implants** (eg, **Nexplanon**). **Q) If ♀ with SCD "Sickle cell disease" and Menorrhagia → Depo-Provera IM.**
Key 104	**Young ♀, with post coital bleeding, cervical smear is normal, no other symptoms** → **Reassure** (likely ectropion) ***Ectropion that does not produce symptoms should be left alone.*** (Please, note that if there is post coital bleeding + Hx of new partner/ vaginal discharge/ abdominal pain, we suspect cervicitis and do **endocervical swab**) (In any woman in **postmenopausal** age presents with vaginal bleeding (even if post-coital), we suspect endometrial carcinoma. If the question asks about the **initial (next) test** → **Transvaginal US**) Followed by Hysteroscopy and biopsy [**Definitive**] (if thick wall on US is seen). However, if the question asks about the (**most likely Dx**), **atrophic vaginitis** and vulvovaginal atrophy are the commonest causes of postmenopausal bleeding. However, **the most worrisome diagnosis** that need investigation by US ± hysteroscopy and biopsy is endometrial carcinoma. This is why our next step would always be transvaginal US to R/O endometrial carcinoma.

	◙ For any female > 51 YO presents with Postmenopausal vaginal bleeding √ **Suspect** → **Endometrial Carcinoma** (Order transvaginal US to check thickness. If thick → Hysteroscopy + Biopsy).
Key 105	**A 28 YO Pregnant ♀ in her 28-week gestation presents for a regular antenatal visit. Her Hb is 11 g/dL.** → **Normal Physiological Phenomenon** (**Not Anemia**) → **Reassure** **When is it Considered Anemia in Pregnancy?** • In **1st** trimester (1-13 weeks gestation) → if the Hb **< 11** g/dL. (Ie, <110 g/L). • In **2nd** trimester (14-26 weeks gestation) → If Hb **< 10.5** g/dL. (Ie, <105 g/L). • In **3rd** trimester (≥ 27 weeks gestation) → If Hb **< 10.5** g/dL. (Ie, <105 g/L). • **Post-Partum** → If Hb **< 10** g/dL. (Ie, <100 g/L). *Note that 11 g/**dl** is the same as 110 g/**L** but with different units. (X 10)*

Example (1):

A 32-year-old pregnant woman presents to antenatal care for a check-up. Her 29-week gestation hemoglobin is 107 g/L (Normal is 115-160). Her MCV 75 fL (normal is 76-96). What is the most appropriate management?

→ No treatment required (normal physiological phenomenon in pregnancy).

Note that the normal range given in the stem (115-160) is the laboratory range and is not a case-specific (differs in pregnancy).

Example (2):

A 23-year-old pregnant woman presents to antenatal care for a check-up. Her 28-week gestation hemoglobin is 108 g/L (Normal is 115-160). Her MCV is 72 fL (normal is 76-96). What is the most appropriate management?

A) Offer oral iron supplements.

B) Offer IV iron.

C) Advise her to increase iron in her diet.

D) Offer high does folic acid.

E) Inform her this is a normal result in her stage of pregnancy.

Answer → E.

She is in the third-trimester (>27 weeks).

	In this stage (**third-trimester**), we consider anemia and offer **oral iron supplements if Hb is ≤105** g/L (or: ≤10.5 g/dL).
Key 106	**A 24 YO female in her 28th week gestational age presents complaining of lower abdominal pain and minimal vaginal bleeding.** → **Placental Abruption**. ♦ First step → **CTG** (baby's vitality). ♦ If not among the options → **Ultrasound** (to rule out placenta previa).
Key 107	**On suspecting rhesus incompatibility, Anti-D immunoglobulin should be given as soon as possible after delivery within a time limit of** → **72 hours**.
Key 108	**An old lady with vaginal bleeding was found to have endometrial thickness of 8 mm on TV Ultrasound.** The next step → **Hysteroscopy and Biopsy** (DDx endometrial carcinoma). For any female > 51 YO presents with Postmenopausal vaginal bleeding

	√ **Suspect** → **Endometrial Carcinoma** √ **Order** → **Transvaginal Ultrasound** (To check the **endometrial thickness**) √ If Endometrial Thickness is **> 4 mm** → **Hysteroscopy with endometrial biopsy**. Again, In any woman in postmenopausal age presents with vaginal bleeding (even if post-coital), if the question asks about the **initial** (**next**) **test** → **Transvaginal US** If it asks about the **diagnostic**/ **most definitive** test → **Hysteroscopy with endometrial biopsy**. Notes, ♦ **Progesterone** (e.g. in combined HRT) **reduces** the risk for endometrial carcinoma. ♦ **RFs of Endometrial Carcinoma**: Obesity/ Nulliparity/ Unopposed estrogen (estrogen given alone without progesterone)/ PCOS/ Tamoxifen/ Early menarche/ Late menopause/ DM
Key 109	**Leakage of urine when feeling the desire to urinate (wet themselves before making it to the bathroom)** → **Urge incontinence** = (**Overactive detrusor muscle**).

	→ **Bladder retraining** (first line) Another important line → **Antimuscarinic √** (e.g. immediate release **Oxybutynin**)
Key 110	**A lady with Hx of pelvic inflammatory disease comes back with lower abdominal pain and tenderness with High Fever.** The investigation → **Pelvic Ultrasound**. (Likely **tubo-ovarian abscess** as a complication of PID that was not properly managed). --- **Tubo-ovarian abscess** (important **√**). ♦ It is an advanced complication of Salpingitis (PID). ♦ Tubo-ovarian abscess should be suspected if a female presents with: **lower abdominal pain** and **tenderness** with **High Fever** + **NO DISCHARGE**. ♦ **Additional hints**:

	(Sexually active and doesn't use barriers) → risk for chlamydia/ Gonorrhea → Cervicitis → PID → Tubo-Ovarian Abscess. If Tubo-ovarian abscess is suspected → **Pelvic Ultrasound**. Note that the results of endocervical/ high vaginal swabs would take days to return, whereas pelvic ultrasound can be immediately performed and may show the abscess.
Key 111	**A postpartum breastfeeding woman presents with palpitations, tachycardia and tremors. Her TSH is low.** → **Postpartum thyroiditis** in the hyperthyroidism phase. → Give **Beta-blockers** e.g. **Propranolol** to manage the symptoms of palpitations and tremors. *Postpartum thyroiditis usually resolves on its own in 1 year after delivery.*
Key 112	**A woman in postmenopause developed Hot flushes and Night sweats.** • Rx → **Hormone Replacement Therapy (HRT)**

Key 113	**Eclampsia = Tonic-clonic (grand-mal) seizure + Preeclampsia (HTN and Proteinuria)** √ To control/ prevent **seizure** → **MgSO4 (Magnesium sulphate)** If another fit? → give **another IV bolus of MgSO4 √**
Key 114	**After initiating Depo-Provera 2 months ago, a female presents complaining of unscheduled vaginal spotting.** → **Reassure and advice to return if bleeding become problematic**. The majority of females who start Depo-Provera (Progesterone-only IM injections taken once every 3 months "12 weeks") tend to have intermenstrual spotting. This usually settles after a year of Depo-Provera use
Key 115	**Cervical smear shows inflammatory changes WITHOUT any dyskaryosis** → **Repeat cervical smear in 6 months** to ensure that the inflammation has resolved. --- **A 31 YO ♀ present enquiring about vaginal spotting 2 days ago. She is on COCP. Last cervical smear was 1 year ago and reported normal. O/E, cervical ectropion is diagnosed. <u>There is bleeding on touch</u>.**

	The next step → **Colposcopy**. √ If smear was done > 3 years ago → order cervical smear. √ If the cervical ectropion **does not bleed on touch** and **smear is normal** → **Reassure**. √ Cervical smear is required once every 3 years in ♀ aged 25-49 YO. Thus, no need to repeat it as it was normal only 1 year back. √ No bothersome symptoms → leave the ectropion alone.
Key 116	**A 22-year-old female with heavy menorrhagia. Her Hb is 9. Low MCV. (Microcytic anemia, likely Iron deficiency anemia).** Rx → **Ferrous sulphate**.
Key 117	**A 28yr old female at 8 weeks GA with 3 previous recurrent first trimester miscarriages. Anti-cardiolipin antibody present. Management?** A. Aspirin B. **Aspirin and Heparin** C. Aspirin and Warfarin D. Heparin E. Warfarin

	Antiphospholipid syndrome is associated with **recurrent miscarriages**. To avoid future miscarriage → **Give Aspirin + LMWH** **Note, warfarin is contraindicated in pregnancy!** All females with recurrent abortions in the first trimester (≤ 13-week gestation) Or those with one or more abortions in the 2nd trimester should be screened for → **Antiphospholipid antibodies** ◙ **Antiphospholipid antibodies include:** √ Lupus anticoagulants. √ Anti-cardiolipin antibodies. √ Anti-B2 glycoprotein-1 antibodies.
Key 118	**A 36-year-old lady with type 1 DM, planning to get pregnant and is anxious about fetal abnormality. Which drug should be given in higher dose than normal?**

A) **Folic Acid**

B) Selenium

C) Iron

D) Vitamin D

E) Thiamine

As she is **diabetic**, the 0.4 mg of folic acid (the usual dose) does not suffice. We need to give her **5 mg** (Category 2) for the first 12 weeks of pregnancy.

Folic acid Dosage in Pregnancy

◙ **The usual dose** → **0.4 mg** (**400 ug**) a day for **12 weeks** of pregnancy.

◙ **5 mg** a day for **12 weeks** of pregnancy if any of the following:

√ **DM**.

√ **BMI > 30**.

√ A pregnant woman taking **antiepileptics**.

√ FHx of **NTD** (Neural Tube Defect).

√ Previous pregnancy with **NTD**.

◙ **5 mg** for **the entire length of pregnancy** if:

√ Thalassemia or thalassemia trait.

√ Sickle Cell Disease (SCD).

Key 119	**A 36 YO old woman who has been using COCPs for 10 years who presented for bright red vaginal bleeding. She is in a stable relationship. Cervical smear reported normal. What is the likely diagnosis?** **Cervical ectropion**. **Young ♀, with post coital bleeding, cervical smear is normal, no other symptoms** → **Reassure** (likely ectropion) ***Ectropion that does not produce symptoms should be left alone.*** (Please, note that if there is post coital bleeding + Hx of new partner/ vaginal discharge/ abdominal pain, we suspect cervicitis and order **endocervical swab**) (In any woman in **postmenopausal** age presents with vaginal bleeding (even if post-coital), we suspect endometrial carcinoma. If the question asks about the **initial (next) test** → **Transvaginal US**) Followed by Hysteroscopy and biopsy [**Definitive**] (if thick wall on US is seen). ◙ For any female > 51 YO presents with Postmenopausal vaginal bleeding √ **Suspect** → **Endometrial Carcinoma** (Order transvaginal US to check thickness. If thick → Hysteroscopy + Biopsy).

Key 120

45-year-old woman whose cervical smear revealed moderate dyskaryosis. What to do next.

a) **colposcopy**

b) no action

c) repeat in 3 months

d) repeat in 6 months

e) take swab

Result	Management
Inflammatory changes WITHOUT Dyskaryosis	**Repeat Cervical Smear in 6 Months**.
Borderline or **mild** dyskaryosis	The original sample is **tested for HPV** • if **negative** the patient goes back to routine recall • if **positive** the patient is referred for **colposcopy**
Moderate dyskaryosis	Consistent with CIN II. Refer for **urgent colposcopy** (within 2 weeks)
Severe dyskaryosis	Consistent with CIN III. Refer for **urgent colposcopy** (within 2 weeks)
Suspected invasive cancer	Refer for urgent colposcopy (within 2 weeks)

	Inadequate sample	**Repeat smear** – if pe—istent (3 inadequate samples) → **assessment by colposcopy**

Key 121

A woman who is seeking asylum presented with amenorrhoea of 12 weeks. She has vaginal bleeding and vomiting. Fundal height measured was at 16 weeks. Pregnancy test was positive, Cervix closed on examination. What is the most likely diagnosis?

a. **Molar pregnancy**

b. incorrect Lmp

c. twin gestation

d. ectopic pregnancy

e. threatened abortion

In this stem, large for age uterus + positive pregnancy test + vomiting and vaginal bleeding → suspect molar pregnancy.

◙ Bilateral cystic masses on Pelvis US (**+**) Vaginal Bleeding in 1st trimester (**+**) Large for date uterus (± Hyperemesis = vomiting = morning sickness)

→ think of **Hydatidiform mole "Molar pregnancy"**

♦ Also, **"snowstorm" appearance of mixed echogenicity →** **molar pregnancy.**

Bilateral cystic masses = Large theca lutein cysts.

Hydatidiform mole might be "***complete***" or "***partial***".

If **complete**, the serum beta human chorionic gonadotropic (**B-hCG**) will be **extremely high**. This ↑↑↑ hCG can lead to hyperemesis.

Management of complete hydatidiform mole.

√ **Surgical evacuation** (Suction Curettage). ***The products of conception have to be histologically examined to*** confirm the diagnosis.

√ **Check hCG every 2 weeks**. (***No Pregnancy is allowed until hCG is back to normal***; therefore, strict contraception "barrier/ oral" is required.

◙ So, after surgical evacuation of hydatidiform mole

→ **measure b-hCG**

Note, Hydatidiform mole is one type of what's called **GTD** [**Gestational Trophoblastic Disease**].

Key 122	**32-year-old woman, 34 weeks pregnant presents with maculopapular rash. Toddler son had chicken pox 2 weeks ago. How would you treat?**

	A. IV varicella zoster Ig B. **IV acyclovir** C. IV ganciclovir D. IM immunoglobulin E. SC varicella zoster Ig As she has developed the rash, she needs Antiviral Rx: Aciclovir.
Key 123	**A woman presented with low abdominal pain, foul smelling discharge and features of peritonitis. Swab have been taken. Treatment?** a. **ofloxacin and metronidazole** b. ceftriaxone c. azithromycin d. doxycycline **Options for Treating PID** (Note that it differs based on local guidelines. These are common examples)

	◙ **Outpatient → (OM)** • Oral **Ofloxacin** + oral **Metronidazole** **or** • Intramuscular **ceftriaxone** + oral **doxycycline** + oral **metronidazole** ◙ **Inpatient → (CDM)** **Ceftriaxone + Doxycycline + Metronidazole** **Note that a failed trial of at home-management (outpatient) e.g. due to non-compliant patient necessitates admission and treatment with** **IV ceftriaxone + Oral Doxycycline.** **If a compliant patient received full outpatient management and presents with same PID features with higher fever** **→ suspect tubo-ovarian abscess and order Pelvis Ultrasound to confirm Dx.** **After finding a mass on US → Laparoscopy would be done.**
Key 124	♦ **Gestational Hypertension** → **New hypertension** after **20th week** gestation without significant proteinuria (i.e. proteinuria **< 0.3** g/24 hr). **Treatment?**

	→ **Labetalol**. ** If Asthmatic (even if well controlled asthma), avoid labetalol (beta blocker is contraindicated in asthma) Instead, give **nifedipine**. Imp √
Key 125	**Women in postmenopause may develop "Postmenopausal Vasomotor symptoms" such as Hot flushes, Night sweats.** • To manage these Vasomotor symptoms → **Hormone Replacement Therapy (HRT)** after evaluating pros and cons. √ If she has had hysterectomy (No uterus), or if there is Intrauterine system "IUS" in situ → **Oestrogen-only HRT**. √ Otherwise → **Combined HRT**. ♦ Note, if a postmenopausal ♀ is a **smoker**, the HRT is given "**Transdermal**" as the oral route has a higher risk for Venous Thromboembolism (VTE).
Key 126	**A woman had anterior resection of the rectum. She was normal until 10th day. Then, she developed fever 39°C, lower abdominal pain, pulse 110bpm. What is the likely diagnosis?** A. Paralytic ileus B. **Pelvic abscess**

	C. Pelvic hematoma D. Pelvic vein thrombosis E. Urinary tract infection Post-op infection is common. If left untreated, abscess may form. The infection element is suggested by the fever. The abscess formation is suggested by the pelvic pain.
Key 127	**A female patient being managed for infertility, when is the best test to assess ovulation?** a) **mid luteal progesterone** b) mid luteal FSH c) serum estrogen Mid-luteal phase progesterone (e.g. day 21 of 28 day cycle; day 28 of 35 day cycle). **Q) which test is used to assess the ovulation in a female with 28 days regular cycles?** **A) Day 21 Progesterone** level (**mid-luteal progesterone level**, which is 1 week before the expected menstrual cycle)

	CAREFUL! We assess the ovulation at the **mid-luteal progesterone** level. This occurs 1 week (7 days) before the onset of the menstrual cycle. So, we subtract (-7). If the cycles are at 28 days → (28-7 = day 21 progesterone). If regular at 31 days → (31-7 = day 24 progesterone). If regular at 35 days → (35-7 = day 28 progesterone).
Key 128	◙ The greatest risk factor for **ectopic pregnancy** → **PID "pelvic inflam. Disease"** ◙ The greatest risk factor for **bladder cancer** → **Smoking**
Key 129	◙ **A 40 YO smoker and overweight female presents with heavy periods (Menorrhagia). She would like a long-term contraceptive method.** → **IUS (e.g. Mirena = levonorgestrel intrauterine system).** • Remember, in a sexually active ♀ (requires contraception) with menorrhagia/ dysmenorrhea/ or fibroids not distorting the uterine cavity The first line ⟶ Mirena (IUS) = Levonorgestrel Intrauterine System

	• Furthermore, this lady has contraindications to COCP (Obesity, Smoking).
Key 130	◙ A pregnant lady in her 22nd week gestation develops hypertension. A useful test to confirm diagnosis is → **Urine analysis** (to look for proteins) ◙ **Preeclampsia** is a condition of pregnancy characterized by high blood pressure (**hypertension**) and protein in the urine (**proteinuria** **> 0.3 g/24 hr**).
Key 131	◙ **A lady takes depot injection and complains that she doesn't have menstruation.** → **Reassure** --- ◙ **After initiating Depo-Provera 2 months ago, a female presents complaining of unscheduled bleeding.** → **Reassure and advice to return if bleeding become problematic**. The majority of females who start Depo-Provera (Progesterone-only IM injections taken once every 3 months "12 weeks") tend to have intermenstrual spotting. This usually settles after a year of Depo-Provera use

Key 132	◙ For any female **> 51** YO presents with **Postmenopausal vaginal bleeding** √ **Suspect** → **Endometrial Carcinoma** √ Initially: order transvaginal **US** to check thickness of the wall of the uterus. √ If **thick** → **Hysteroscopy** + Biopsy) (diagnostic)
Key 133	◙ Dyspareunia ± dysuria, frequency in **> 51 YO** → suspect **Atrophic vaginitis** (**Give topical estrogen cream**)
Key 134	**Meigs' Syndrome** √ **Ascites**. √ **Pleural effusion**. √ **A benign ovarian tumor**. If a stem includes all these 3 features → Meigs' syndrome (Benign ovarian tumor). ◙ **Features:**

	√ Dyspnea, ↓ breath sound, dullness on chest percussion → pleural effusion. √ Abdominal shifting dullness → Ascites. √ Pelvic pain → ovarian tumor.
Key 135	◙ **bleeding in the first 24 hrs after delivery** → 1ry PPH → think: uterine atony or trauma to the genital tract or DIC (if Hx of placental abruption/ still birth "fetal demise"). ◙ **Bleeding that starts after 24 hrs of delivery** → 2ry PPH → think: Endometritis (foul smelling discharge, fever). (do high vaginal swab) or retained products of conception.
Key 136	**Early Pregnancy: No Fetal Cardiac Activity on Transvaginal US. What to do next?**

	Using transvaginal ultrasound, measure: **√ Crown-rump length (CRL), and** **√ Gestational sac diameter (GSD).** **◘ If CRL < 7 mm (or GSC < 25 mm)** **→ repeat transvaginal US in 7 days (the fetus might be too small to see cardiac activity).** **◘ If CRL ≥ 7 mm (or GSD ≥ 25 mm)** **→ obtain a second opinion or rescan in 7 days.** *It is never 100% accurate to give a diagnosis of miscarriage depending on only 1 US scan. This is why a rescan is usually done in 1 week.*
Key 137	**Combined oral contraceptive pills UKMEC categories:** ◘ UKMEC 1: breast feeding after 6 months, varicose veins. ◘ UKMEC 2: smoking, BMI > 30. ◘ UKMEC 4: **migraine with aura** (**Absolute contraindication**). **So, what is considered a safe contraception method in migraine with aura?**

	√ IU copper device (UKMEC 1) and barrier methods. √ Then, we consider POP, IUS, DMPA (UKMEC 2). *UKMEC 1 = safe, no restrictions to use.* *UKMEC 4 = absolute contraindication to use.*
Key 138	**Medications used for gestational hypertension** ◘ First line → **Labetalol** (a beta blocker). ◘ If contraindicated (eg, Hx of Asthma) → **Nifedipine**. ◘ If contraindicated → Methyldopa. These 3 medications are also safe for breastfeeding mothers.
Key 139	◙ Unless contraindicated, **Combined Oral Contraceptive Pills (COCP)** are useful to alleviate the symptoms of premenstrual syndrome by preventing ovulation.
Key 140	**It is important to know when to use cyclical VS continuous Hormone Replacement Therapy.**

	√ **Cyclical** combined hormone replacement therapy is used to alleviate hot flushes, depression, improves sleep in women who are still menstruating (perimenopause). √ On the other hand, **continuous** combined HRT is given to women who have had their last menstrual cycle 12 months ago (have reached the menopause). √ Oestrogen-only hormone replacement therapy is suitable for women who do not have uterus.
Key 141	**Postmenopausal vaginal bleeding:** If the question asks about the (**most likely Dx**), **atrophic vaginitis** and vulvovaginal atrophy are the commonest causes of postmenopausal bleeding. However, **the most worrisome diagnosis** that needs investigation by US ± hysteroscopy and biopsy is **endometrial carcinoma**. This is why our next step would always be transvaginal US to R/O endometrial carcinoma. U/S may be followed by Hysteroscopy and biopsy (definitive) if the endometrial thickness is > 4 mm on U/S.
Key 142	√ Women who are at moderate to high **risk of developing pre-eclampsia** are given **Aspirin 75-150** mg daily. √ This should be **started from the week number 12 of pregnancy until delivery**. ◙ **Examples of those who need to take aspirin:** √ Previous Hx of hypertension or pre-eclampsia during a past pregnancy. √ FHx of pre-eclampsia. √ Pregnancy at age of > 40 years.

	√ BMI of > 35 kg/m^2. √ Chronic HTN. √ Chronic kidney disease. √ Antiphospholipid syndrome, SLE. √ Pregnancy interval of > 10 years. √ DM √ Twins, Triplets pregnancy.
Key 143	**A 38 YO woman complain of heavy irregular menstruations for the past few years. She has 3 children and has completed her family and is not planning for getting pregnant again. Her past medical history includes migraine with aura and pulmonary embolism. She undergoes pelvic ultrasound that reveals small submucosal fibroids and is anaemic. What is the most appropriate management?** **A) COCP.** **B) Mirena (levonorgestrel-releasing intrauterine system).** **C) Intrauterine copper device.** **D) Depo-Provera IM injections.** **E) Uterine ablation.** √ This woman's main complaint is the irregular and heavy menstrual cycles (Menorrhagia and Metrorrhagia) due to fibroids which has led to anemia. √ She does not want to get pregnant again.

	√ If this woman did not have Hx of pulmonary embolism and migraine with aura, Mirena (levonorgestrel-releasing IUS) would have been the best option as it can manage bleeding and shrink the small fibroids. √ Given that she has Hx of PE and migraine with aura, COCP, Mirena and depo-provera should be avoided. √ This leaves us with copper IUD and uterine ablation. √ Copper IUD is good for contraception and is safe with Hx of PE and migraine with aura; **however**, it won't address the heavy irregular cycles she is having "which is the main complaint here". Therefore, the answer here is **uterine ablation** (and even though it can affect fertility, this woman is not planning for having more children). **Please, if you encounter the same exact scenario but without a Hx of pulmonary embolism or migraine with aura, go for Mirena (levonorgestrel-releasing IUD) as it can manage bleeding and shrink fibroids.**
Key 144	**A woman with a Hx of DVT is asking for a form of contraception. What is the safest among the following?** **Intrauterine copper device ▌IUS ▌Depo-provera** **progesterone only implants ▌Progesterone only pills.**

	√ Hx of DVT makes IUS, IUD, COCP, POP, POI not favourable. Therefore, copper IUD is the safest here. √ With Hx of DVT: • Intrauterine copper device is UKMEC 1. (safest) • IUS "Mirena", depo-provera, POI and POP are UKMEC 2. (riskier).
Key 145	**One of the most common complications of surgical termination of pregnancy is endometritis.** **It presents with vaginal bleeding and lower abdominal pain.**
Key 146	*Important* **In short, for constipation, after trying conservative management (increase fluid intake and high-fibre diet and exercise), the first line is as follows:** ♦ In general → Senna (stimulant laxative). ♦ In pregnancy: ILS √ First line → Ispaghula husk (bulk-forming laxative). √ Second line → Lactulose (osmotic laxative). √ Third line → Senna (stimulant laxative).

Key 147

Management of genital herpes in Pregnancy.

It differs based on either the herpes lesions are first time or recurrent.

◙ **If First-time** "the pregnant woman got HSV for the first-time during pregnancy", the management differs based on in which trimester the lesions appear:

√ 1st and 2nd trimester:

- Give **oral** aciclovir 400 mg TID for 5 days,
- then start suppressive aciclovir 400 mg TID from the week 36 of gestation until delivery "this can reduce the risk of neonatal transmission during the vaginal delivery".

√ 3rd trimester:

- Give **oral** aciclovir 400 mg TID for 5 days,
- then start suppressive aciclovir 400 mg TID from the week 36 of gestation until delivery "this can reduce the risk of neonatal transmission during the vaginal delivery". The major difference here is that **Caesarean Section** is the preferred mode of delivery if the HSV infection was primary "first episode" and it started during the third trimester. "This is because in such a case, the risk of neonatal transmission during Vaginal delivery is high".

◙ If the genital herpes is **Recurrent**:

Start suppressive aciclovir 400 mg TID from the week 36 of gestation until delivery. The risk of neonatal herpes is low even if the lesions are present during the vaginal delivery.

Example:

A 36+3 pregnant woman presents with painful genital blisters for 3 days and tender inguinal lymph nodes. This is the first time she experiences these symptoms. One week ago, she had fever and muscle pains. What is the most appropriate management?

→ **Start Oral aciclovir until delivery + Plan CS at 39 weeks.**

She developed HSV for the "first time" i.e. not recurrent. She is in her 3rd trimester.

The aciclovir is *oral* "not IV", and the "*CS*" is the preferred mode of delivery in this case "not vaginal".

Key 148

♦ **Preeclampsia** → **HTN** + **Proteinuria > 0.3** g/24 hr after **20th week** gestation.

♦ **Gestational Hypertension** → **New hypertension** after **20th week** gestation **without** significant proteinuria (ie, proteinuria **< 0.3** g/24 hr).

Important, sometimes HTN + proteinuria can present and it is still "gestational hypertension" rather than "Pre-eclampsia". When to consider it Pre-eclampsia?

HTN after the 20th week of gestation + one of these 3:

√ Significant Proteinuria (24-hour urine protein **> 0.3 g/24 hour** or:

√ Protein creatinine ratio (PCR) **> 30** mg/mmol or:

	√ Albumin creatinine ratio (ACR) **> 8** mg/mmol. "*These numbers are important to be memorised*" √ **Example**, Female presents at 25 weeks gestation with first time HTN and proteinuria +2 and protein creatinine ratio 10 mg/mmol → ***Gestational hypertension***.
Key 149	***Important***: If the ectropion is symptomatic (e.g., it causes post-coital bleeding) → Refer for colposcopy. Otherwise → Reassure. ***Example:*** **A 44 YO woman presents complaining of vaginal spotting after every intercourse and intermenstrual bleeding. Her last cervical smear was 1 year ago and was normal. Her last sexual transmitted infection screen was normal. She is on COCPs for 3 years. On speculum examination, the cervix is friable and bleeds when prodded. What should be done?** → **refer for colposcopy**.
Key 150	**Among the following contraception methods, which one has the lowest failure rate:**

	A) Mirena coils. **B) POPs** **C) Copper IU devices.** **D) Barrier methods.**
Key 151	**On CTG "Cardiotocography", there is initial good variability "130 bpm", followed by a single fetal bradycardia for 3 minutes "single prolonged deceleration". What should be done INITIALLY?** 1) Change the position of the mother "e.g., **switch her to a left lateral decubitus position**". Sometimes, a large uterus can compress aorta and IVC, thus changing the patient's position should be tried first". 2) IV fluids. **3)** Prepare for C-section as needed. **Acute bradycardia or a single prolonged deceleration for 3 minutes or more is considered pathological and needs urgent intervention and to expedite delivery.**
Key 152	**During pregnancy, what antibiotic to be used in lower urinary tract infection?** √ Pick **Nitrofurantoin** "1st line unless near term. If she is at term, avoid it!". If Nitrofurantoin is not in the options?

	√ Pick **Cefalexin**. If Cefalexin is not in the options? √ Pick **Amoxicillin**. **Nitrofurantoin "unless at term" → Cefalexin → Amoxicillin** • *"Interesting point: in practice, junior doctors usually give cefalexin as it is safe in pregnancy and can be used to treat both upper and lower UTIs".* • *Remember that trimethoprim is contraindicated during 1st and 2nd trimesters.* • *Remember that ciprofloxacin is better avoided during pregnancy.*
Key 153	**Unilateral iliac fossa pain + U/S showing large ovarian cyst with decreased vascularity ± fever** → suspect ovarian torsion → **refer for Gynaecology urgently** to proceed with surgery as urgent surgery would potentially save the ovary before it becomes necrotic.
Key 154	**Important risk factors for cervical cancer:** √ HPV.

√ Having multiple sexual partners (↑ risk of HPV).

√ Immunodeficiency (e.g., HIV).

√ Smoking.

√ Long-term use of oral contraceptives pills (SMALL risk compared to smoking).

√ Having multiple full-term pregnancies.

√ Young age at first full-term pregnancy.

Remember that cervical cancer screening is done:

√ 25-49 YO → every 3 years.

√ 50-64 → every 5 years.

Remember that:

"condoms" are protective against HPV and thus cervical cancer.

Example:

A 20 YO female smokes 20 cigarettes a day, uses condoms ad COCPs, uses tampons during her menstruation. What should she avoid to reduce the risk of cervical cancer?

→ **Stop smoking.**

Key 155	**A pregnant woman of 11-week gestation presents with nausea and vomiting. Her urinalysis shows 4+ ketones. She has been given IV fluids and antiemetics but still vomiting. Next step?** → **IV hydrocortisone**. ◙ **Management of hyperemesis gravidarum** (Important √) **F.A.S.T** **F**luid → **A**ntiemetics → **S**teroids → **T**hiamine ♣ First step → **IV fluid** (rehydration) Note, if low K^+ (<3.5) → Give ***NaCl 0.9% + 20-40 mmol/L KCl*** ♣ Second step → **Antiemetics**: √ **1st line**: "**zine**" family e.g. **Cyclizine, Promethazine** √ **2nd line**: **I**V **Metoclopramide**, **Ondansetron** √ **3rd line**: **S**teroids (IV hydrocortisone). ♣ Thiamine should be then considered to prevent Wernicke's encephalopathy.
Key 156	**Severe lower abdominal pain + Pregnancy test is positive + Tender right iliac fossa + U/S shows free fluid in the Douglas pouch**

	Think → Ruptured ectopic pregnancy.
Key 157	**A 65 YO woman presents complaining of a three-month history of poorly localised abdominal discomfort and bloating. She has lost 7 Kg over the past 2 months unintentionally. She has decreased appetite. She does not have any rectal bleeding or abdominal mass or any family history of cancer.** **The INITIAL test to do → CA 125 (for fear of ovarian cancer).** • NICE guidelines: Any woman **≥ 50 YO** with **ONE** or more of the following, should be tested for serum **CA 125** as a first step followed by abdominal U/S. √ Abdominal distension or bloating. √ Loss of appetite "or early satiety". √ Pelvic or abdominal pain. √ increased urinary urgency and/or urinary frequency. • 80% of ovarian cancer shows high CA 125. So, it is a very good test to start off with. If the result comes up high, proceed to U/S. If it comes up normal but still there is a high suspicion of ovarian cancer, also do U/S of abdomen and pelvis.
Key 158	**IMPORTANT,**

	If the cervical smear is normal, Swabs are negative for chlamydia and Neisseria, U/S is normal, cervix looks normal. However, there is abnormal intermenstrual bleeding for > 6-8 weeks → **Refer for colposcopy**. **(Review key 47).**
Key 159	**A 26 YO would like a contraception option. However, she would like to conceive "i.e., to get pregnant" after 6 months. She has migraine with aura and asthma. For the asthma, she is on inhaled salbutamol and corticosteroids. She has dysmenorrhea. What is the most appropriate contraceptive option for her?** • COCPs → **No**, it is contraindicated in migraine with aura. • IUS (Mirena, copper) → **No**, it is used if the contraception is needed for a few years, not months. • Depo-provera (IM progesterone) → **No**, the conception is only possible after around 8-10 months of the last does. She would like to conceive after 6 months. • **Progesterone-only pills (POPs)** → **Yes**. It is considered UKMEC 2 in women with migraine with aura. Also, it does not prevent pregnancy for a long time. UKMEC2 = there are still advantages compared to risks.
Key 160	◙ The contraceptive method with the **lowest failure rate** is → **Etonogestrel contraceptive implant** **(pearl index = failure rate 0.05%)** (Subdermal implant e.g., Implanon, Nexplanon. Pearl index 0.05%).

	Followed by → **Mirena = levonorgestrel IUS** **(pearl index 0.2%)** **Both are even better than laparoscopic tubal ligation (female sterilisation) which has pearl index or failure rate of 5%** **From lowest failure rate (pearl index):** Subdermal implants (e.g., Nexplanon) → 0.05% Mirena (Levonorgestrel Intrauterine System) → 0.2% Tubal ligation (sterilisation) → 0.5% Intrauterine copper device → 0.6% Male condoms with perfect use → 2%
Key 161	◙ The contraceptive method that is more appropriate to manage **very heavy menstrual bleedings** → **Mirena** (failure rate 0.2% + help manage bleeding) ◙ If **not** among the options → **COCPs** (help manage bleeding) (Nexplanon and intrauterine copper are not good for managing bleeding).
Key 162	The most appropriate management in female with **PCOS** (acnes, hirsutism, high testosterone) with **irregular cycles – very delayed cycles**? ◙ → **Mirena** (help manage bleeding and irregular cycles)

	◙ If **not** among the options → **COCPs** (help manage bleeding and irregular cycles) ◙ If she already tried COCPs but developed S/E eg, nausea and vomiting → **Norethisterone**. "New Q, asked recently √". *"Note that the use of metformin for PCOS in the UK is still controversial and not licensed. Therefore, it will **not** be a valid answer in the exam".*
Key 163	**A pregnant woman (>28 weeks), with reduced fetal movement.** **What to do first?** **First** → **Fetal hand-held doppler ultrasound** (This auscultates fetal heart to exclude fetal death first). **After that** → **CTG** (**Cardiotocography**) (To exclude fetal compromise). *(If fetal hand-held US is not in the options → pick CTG)*
Key 164	The safest antihypertensive in pregnancy → **Labetalol**

Key 165	**Missed Pill (Progesterone only pill: POP) > 3 hours late. What to do?** → Take the missed pill as soon as possible, And continue to take the remaining pack at the "usual" times, And use condoms if having intercourse for 48 hours of the restarting time. Emergency contraception is **NOT** needed unless unprotected sex has occurred after the missed pill and within 48 hours of restarting POP. *(Refer to Key 207 for full topic, better explanation, more scenarios).*
Key 166	**Missed Pill (COCPs):** The most common COCPs regimen is **21/7** i.e., the woman would take COCPs for 3 weeks (21 days) and then she would have 7 days free (called: pill-free interval). Week 1 = from day **1** to day **7** after the pill free interval. Week 2 = from day **8** to day **14** after the pill free interval. Week 3 = from day **15** to day **21** after the pill free interval. • **If 1 pill is missed (at any time of the cycle):** **√** Take the last pill as soon as possible (even if this means you would take 2 pills at the same day.

√ Continue the pack as the usual. (**No** additional protection is needed).

- **If 2 or more pills are missed:**

√ Take the last pill as soon as possible (even if this means you would take 2 pills at the same day.

√ Use condoms or abstain from unprotected sex for the next 7 days.

(Consider emergency contraception only if the missed pills are in week 1)

(If the pills were missed in week 3, no pill free interval would follow, omit it).

Example,

A woman on COCPs has forgotten to take her pills for the past 3 days as she was super busy with family issues. She is on day 14 (i.e., week 2). She had unprotected sexual intercourse 2 days ago. What should she do?

→ Take one pill as soon as possible, and take the 2nd pill on its usual time (even of this means she would talk 2 pills at the same day).

→ Use condom or abstain from unprotected sex for 7 days in a row.

(Emergency contraception is not needed as she missed pills in week 2).

(Refer to Key 207 for full topic, better explanation, more scenarios).

Key 167	Consider a programme of supervised **pelvic floor muscle training** for at least 16 weeks as a first option for women with symptomatic **Pelvic Organ Prolapse** stage 1 (e.g., uterine prolapse above the introitus level) or stage 2 (e.g., uterine prolapse until the level of introitus). It is tried **first**. Then: vaginal pessary insertion as an additional Rx. • The patient may feel that "something is coming down their vagina". • pelvic floor muscle training is also the 1st line for stress urinary incontinence.
Key 168	**A 35 YO woman presents to a neurology clinic complaining of episodes of temporary weakness of left arm and numbness on her left face. This is followed by headache on left side of her head. The episodes are recurrent around twice a month, each can last for up to 24 hours. Her blood pressure is normal. She is on COCPs and smoker.** **What is the most appropriate action?** √ The likely Dx here is **migraine with aura**. Note that propranolol is for prophylaxis (not beneficial during the attacks). **The best action** → **Advise her to switch from COCPs to Progesterone-only pills**. (COCP is contraindicated in patients who are suffering from migraine with aura as it increases the risk of ischemic stroke).

Key 169	• Heavy menstrual bleeds (menorrhagia) with no other complaints, and the uterus is **NOT** palpable on abdominal examination: The **INITIAL** investigation → **Full blood count (FBC)**. • Heavy menstrual bleeds (menorrhagia) with no other complaints, and the uterus is **Palpable** on abdominal examination/ or features suggesting mass: The **INITIAL** investigation → **Pelvic U/S** (looking for submucosal fibroids).
Key 170	**A 60 YO woman came to a GP with a 6-month history of abdominal distension + early satiety but no palpable mass on examination is detected and no weight loss, no anorexia, CA 125 is done and found 90 (normal < 25).** • The first "initial" Next step → **Urgent Ultrasound**. CA 125 is high. However, no pelvic mass or weight loss or strong features for **ovarian cancer**. So, a GP would do U/S first before referring to a gynaecologist. If this same patient has palpable pelvic mass, a referral to a gynaecologist would be made initially. If U/S of abdomen and pelvis is suggestive of ovarian cancer, the GP would → **Refer the patient to a gynaecologist urgently**.

	A 60 YO woman came to a GP with a 6-month history of abdominal distension + early satiety + there is palpable pelvic mass on examination + Ascites. CA 125 is done and found 90 (normal < 25). • The first "initial" Next step → **Refer the patient to a gynaecologist urgently**. All given features are suggestive of ovarian cancer. The GP in this case should refer to gynaecology urgently.
Key 171	If cervical smear (cytology) is **NORMAL**, but the patient has a **Positive Screen of high-risk HPV** (*however, the cytology is normal as mentioned*) → **Re-screen for HPV in 12 months**. If cytology is abnormal eg, borderline or worse → **Refer for colposcopy**. *(Review key 47)*
Key 172	**Management of Postmenopausal Symptoms**: • If vaginal dryness only → use topical vaginal estrogen "estrogen cream". • If vaginal dryness + night sweats, hot flushes

	→ Hormone replacement therapy (HRT): **Q) Sequential or continuous HRT?** • **Sequential "Cyclical" combined HRT** → used in the first 12 months of menopause or in perimenopause "still menstruating". I.e., if perimenopausal or her last menstrual period was less than 12 months ago, use sequential HRT. Oestrogen is taken daily while Progesterone is taken Cyclically "for the last 14 days of a menstrual cycle". • **Continuous combined HRT** → used in menopausal women (women who have had their last menstrual cycle ≥ 12 months ago). Both Oestrogen and Progesterone are taken daily. *It is important to differentiate between sequential and continuous HRT.*
Key 173	**Low lying placenta + post-intercourse vaginal spotting bleeding** Perform → **Speculum examination**. It can visualise the vagina and cervix. This can help identify the source of bleeding and assess whether the bleeding is coming from the lower genital tract or no. If no obvious source of bleeding and there is a history of low-lying placenta or placenta previa, it would be strongly suggestive that the bleeding is coming from the placenta.
Key 174	**Menorrhagia "prolonged heavy periods"** **+ Infertility** **+ Palpable mass at pelvis**

	Think → Fibroids.
Key 175	**Pregnancy (2nd or 3rd trimester)** **+ development of severe itching (esp. in late in pregnancy) WITHOUT rash** **Suspect → Obstetric cholestasis.** **Its new name is: = Intrahepatic Cholestasis of Pregnancy (ICP):** **Request → Liver function tests.** **If liver function tests are normal:** **Request → Serum bile acid levels.** • Generalized itching, particularly on the palms and soles, worse at night are indicative of intrahepatic cholestasis of pregnancy (ICP). • ICP is associated with elevated serum bile acid levels, which are a key diagnostic marker. *(ALT and AST would be raised in obstetric cholestasis.* *ALP is normally – physiologically – raised during pregnancy).* *Note: Sometimes, bile acid levels can elevate before liver function abnormalities become apparent.*
Key 176	**A 28 YO lady is trying to conceive.** **She removed etonogestrel implant 6 months ago.**

	She exercises a lot. **HER BMI is 20.** **She drinks 3 cups of coffee a day.** **She is having sexual intercourse only on the days she is ovulating.** **What is the best advice for her to help her get pregnant?** → **Advise her to have sexual intercourse throughout her cycle.**
Key 177	**A postpartum woman had sexual intercourse with her partner 16 days after her delivery. Would she need emergency contraception?** → **No. No emergency contraception is needed until 21 days postpartum.** (During the first 21 days after delivery → no need for contraception).
Key 178	◘ **Treatment of Urge Incontinence:** √ **Bladder drill (Retraining)** → gradually increase the periods between voiding. (for 6 weeks) + **Behavioral "avoid coffee, alcohol"**. √ If drugs are needed → **Antimuscarinic** (e.g., immediate release **Oxybutynin**)

	Another important antimuscarinic drug to remember → **Tolterodine** *Both medications were targeted int the exam.*
Key 179	**Q) What hormone is used to <u>assess the ovulation</u>?** → **Progesterone** We assess the ovulation at the **mid-luteal progesterone** level. This occurs 1 week (7 days) before the onset of the menstrual cycle. So, we subtract (-7). **Examples:** • If the cycles are at **28** days → (28-7 = day **21** progesterone). • If regular at **31** days → (31-7 = day **24** progesterone). • If regular at **35** days → (35-7 = day **28** progesterone).
Key 180	**Notes on Contraception** • **Coils** such as **intrauterine system (Mirena)** and **copper intrauterine devices** should **<u>not</u>** be used in females with irregularly shaped uterus and distorted intrauterine cavity (as they are difficult to fit and have high expulsion rate).

	• **COCPs** are **contraindicated** in patients with a history of venous thromboembolism. **Other contraindications**: Smoking, Migraine with aura, Hypertension even if controlled, Obesity (BMI > 30), Learning difficulties, Postpartum for 6 months if breast-feeding and for 6 weeks if not breast-feeding. • **Condoms** are **not** used for long-term contraception. • **Depo-Provera** (medroxyprogesterone acetate) is an intramuscular (IM) injection given once every 3 months (13-16 weeks) at a clinic. It is contraindicated in females < 20 YO. However, it is **first-line** in females with **sickle cell anemia** with Menorrhagia. **Example**: **A female wants a long-term contraception. She has a history of venous thromboembolism 3 years ago. She has irregularly shaped uterus. She has menorrhagia. What is the best option for her among the following?** **(Intrauterine system – copper device – COCPs – Condoms – Depo-provera).** Based on the above-mentioned notes, the only option that fits here is → **Depo-provera** (IM injection).
Key 181	**Before surgery** that may involve a **significant blood loss** (eg, **hysterectomy**). It is a good practice to request **full blood count (FCB)** to check **hemoglobin**

	before going for surgery. The patient might be severely anaemic which may require delaying non-urgent surgeries, transfusing blood before urgent surgeries, or preparing more blood units in standby.
Key 182	**A 30-year-old woman in her 35 week-gestation presents with headache and high blood pressure (170/110 mmHg). Her urine dipstick shows 2+ protein. Protein:Creatinine ratio is 330 (normal: <50). Her liver and kidney function tests are within normal ranges. What is the most likely diagnosis?** → **Severe pre-eclampsia.** • If hypertension in a woman before 20 weeks gestion (either with or without proteinuria) Think → Chronic [pre-existing] hypertension. • If new hypertension in a woman ≥ 20 weeks gestion but no proteinuria, no seizure Think → Gestational hypertension. • ≥ 20 weeks gestation + Hypertension + significant proteinuria (2+ or more) Think → Pre-eclampsia

- If with seizure, think → Eclampsia.

Hypertensive disorders of pregnancy	
Chronic hypertension	• Systolic pressure **≥140 mm Hg** &/or diastolic pressure **≥90 mm Hg** prior to conception or 20 weeks gestation
Gestational hypertension	• New-onset elevated blood pressure at ≥20 weeks gestation • No proteinuria or end-organ damage
Preeclampsia	• New-onset elevated blood pressure at ≥20 weeks gestation **AND** • Proteinuria **OR** signs of end-organ damage
Eclampsia	• Preeclampsia **AND** • New-onset grand mal seizures

Thus, excluding proteinuria is important in HTN in Pregnancy, request:

→ urinalysis or urine dipstick (≥ 2+ is diagnostic of proteinuria)

If ≥ 2+, think → Preeclampsia, or Eclampsia (if with seizure)

If still negative (< 2+) → 24-hour urine collection for total protein (goldstandard).

Also remember:

◙ HELLP Syndrome

→ **H**emolysis (low Hb), **E**levated **L**iver enzymes, **L**ow **P**latelets.

	• Features of HELLP syndrome → Epigastric or RUQ pain & tenderness ± Nausea and Vomiting ± dark or tea coloured urine "due to hemolysis" ± HTN and other features of preeclampsia Rx ⟶ Delivery of the baby ▌MgSO4 if with seizures (eclampsia) ◙ **Acute Fatty Liver of Pregnancy (AFLP)** ⟶ ELLP (without Hemolysis -Hb is not low-) **+** (↓) Glucose ± (↑) Ammonia ◙ **Disseminated Intravascular Coagulation (DIC)** ⟶ High PT, High PTT, High Bleeding Time, Low Platelets, Low Fibrinogen.
Key 183	**Irregular bleeding or spotting** in postmenopausal women after starting continuous hormone replacement therapy (**HRT**) is common and it may continue up to 4-6 months after onset of HRT. Thus → **Reassure**. **Further investigations are need if:** √ Bleeding persists > 6 months. √ Bleeding becomes abnormally heavy. However, if she was not started on HRT and her vaginal bleeding is not related to HRT and she is ≥ 51 YO, remember the following important rule: ◙ For any female > 51 YO presents with Postmenopausal vaginal bleeding √ **Suspect** → **Endometrial Carcinoma**

	√ Request **initially** transvaginal US to check thickness. √ **If thick** → Hysteroscopy + Biopsy.
Key 184	**Remember:** Ruptured ectopic pregnancy → Signs of shock (unstable; ↓BP, ↑PR) → Urgent laparotomy/ laparoscopy (after initial resuscitation). **How to know it is an ectopic pregnancy?** √ **Lower abdominal pain** and tenderness (could be unilateral). "The first symptom" √ A missed period (**recent amenorrhea**) = no menstruation for 6-8 weeks from the beginning of the last period. √ Vaginal bleeding. √ Shoulder tip pain "due to peritoneal bleeding" + Peritonism [Indicate ectopic tubal rupture] √ Cervical motion tenderness "Cervical Excitation". √ Pregnancy test, b-hCG: **Positive**. √ Vaginal U/S → **Empty uterus**.
Key 185	A female with menorrhagia + Irregular periods,

	She is sexually active, She does not want to get pregnant, → Combined oral contraceptive pills. COCPs can help her 3 complaints. ♦ **Menorrhagia only** (Heavy menstruation) → First line is **Mirena**, unless if pregnancy is wished soon or she is < 20 YO, then → **Tranexamic acid**. ♦ **Menorrhagia** + **Dysmenorrhea** → **Mefenamic acid**. ♦ **Menorrhagia** + **Irregular menses** + **Does not want to get pregnant** → **COCPs**. ♦ **Metrorrhagia** (**irregular menses**) ± **Menorrhagia/ Dysmenorrhea** → **COCPs**. √ Once there is dysmenorrhea (painful menstruation) → Mefenamic acid √ Once there are Metrorrhagia (irregular menses) → COCPs √ Menorrhagia only → Mirena (first-line) unless if she is < 20 YO or she wishes to be pregnant in the near future, then → Tranexamic acid √ Menorrhagia in a female with SCD → Depo-Provera (IM progesterone).
Key 186	**Pregnancy and Diabetes** (important notes). • Diabetic women who are pregnant or planning to get pregnant need to take a **higher dose of folic acid** than normal healthy women.

	• This is to reduce the risk of having a baby with neural tube defects (NTDs). √ **DM + Pregnancy** → Folic acid 5 mg/ day (until the 12th week pregnancy). √ **Normal healthy pregnant woman** → Folic acid 400 mcg/ day. **Additional notes:** ◙ There are other conditions where a pregnant woman needs to take folic acid **5 mg/daily until the week 12 of pregnancy** such as: **Diabetes**, those on **antiepileptic** medications, those with **BMI > 30**, those with **family history** or **pregnancy history of neural tube defects**. ◙ Note that pregnant women who have **thalassemia** or **sickle cell anemia** would need to take folic acid 5 mg/day **for the ENTIRE length of pregnancy**.
Key 187	**A Tricky Scenario (Test Your Knowledge on a Previous Topic)**: A 42-year-old pregnant woman presents for antenatal appointment. She is at 17-week gestation and her blood pressure is 155/110 mmHg. Her last blood pressure measurement was at 9 weeks gestation and it was 145/95 mmHg. She has no symptoms. Her urine dipstick shows 1+ protein. What is the most accurate diagnostic term for her condition? → Pre-existing hypertension. Since she has a raised blood pressure **before** the **week 20 of pregnancy** → This is **NOT** gestational hypertension **NOR** pre-eclampsia. • If hypertension in a woman before 20 weeks gestion (either with or without proteinuria). Think → Chronic [pre-existing] hypertension.

	• If a new hypertension in a woman ≥ 20 weeks gestion but no proteinuria, no seizure. Think → Gestational hypertension. • ≥ 20 weeks gestation + Hypertension + significant proteinuria (2+ or more) Think → Pre-eclampsia • If the above (≥20 weeks, HTN, proteinuria) **+ seizure**, think → Eclampsia.
Key 188	**In a suspected case of placental abruption** (**Sudden severe abdominal pain + Vaginal bleeding in "the 3rd trimester"** ie, >28 weeks Gestation ± Fetal distress): ◙ **Firstly**, perform → CTG **(Cardiotocography)** (Not U/S)! ♦ If it shows **fetal distress** → **Urgent C-Section**. ♦ If it is **normal** → Perform **vaginal ultrasound** (to R/O placenta previa). ***Note, ultrasound has minimal rule in placental abruption (clinically diagnosis) but it is important in placenta previa.*** **What if CTG is not among the options?** → Pick **Ultrasound** "vaginal US is preferred over abdominal US → to R/O Placenta Previa"

	Important, never perform speculum or digital examination until placenta previa is ruled out (by Ultrasound).
Key 189	**Important note on Surgical Menopause and Osteoporosis:** • In general, **bisphosphonate** is used for **osteoporosis**. • However, women who are **<51 YO**, and are undergoing surgical menopause (ie, **oophorectomy +/- hysterectomy**) need to take hormone replacement therapy -**HRT**- eg, Oestradiol with or without Progesterone until the age of 51 years (which is the average age of natural menopause). • One of **HRT** benefits in this case is the **prevention of osteoporosis**. • Progesterone is not given if there is no uterus (if hysterectomy is also done) as the main aim of progesterone is to prevent endometrial proliferation and thus reduce risk of endometrial cancer. If no uterus → give oestradiol only.
Key 190	**The first step in the management of hydration (severe vomiting ± Diarrhea ± Impending renal failure evidence by altered kidney function tests)** → Crystalloid fluid: √ Normal saline (0.9% sodium chloride) or: √ Hartman's solution.

Key 191

◙ Important points on the management of -severe- preeclampsia:

If the patient is having a (**severe**) preeclampsia (ie, BP ≥ 160/110 with symptoms such as headaches, visual disturbance, epigastric pain) **AND**

1 or > of the following: (**Brisk reflexes** -hyperreflexia), **clonus**, **eclamptic fits**

In addition to **labetalol** (which is the first-line antihypertensive in pregnancy),

Give → a prophylactic dose of **IV magnesium sulphate** (to prevent eclampsia).

Then → Plan for the delivery of the baby once the patient is stabilised.

This is because the delivery of placenta (induction of labour) is the only cure for preeclampsia. However, one should balance out the risk of too prematurity of a baby against the preeclampsia complications. In all cases, stabilise the patient first (eg, if severe preeclampsia → IV MgSO4 first).

Scenario:

A 33-year-old pregnant woman at her 32 weeks gestation presents with epigastric pain. Her blood pressure is 166/115 mmHg. Her urine analysis shows 2+ protein. Her previous blood pressure was 120/80 mmHg. She was given labetalol and admitted to the high dependency unit (HDU). Her blood pressure is still high (average readings 155/105 mmHg). Her epigastric pain is worsening and has started to have headaches. Her reflexes are brisk. Her Cardiotocography (CTG) is normal. What is the most appropriate NEXT step in management?

→ Give a prophylactic dose of **IV magnesium sulphate** (impending eclampsia).

Important follow-up Q1):

What if the same patient but with **no** symptoms? (Ie, blood pressure is still high despite being on labetalol however there are no symptoms of impending eclampsia, such as no eclamptic fits, headaches, brisk reflexes, epigastric pain?

→ Give a second antihypertensive eg, IV hydralazine.

In reality, both IV MgSO4 + another antihypertensive are given together.

Important follow-up Q2):

What if the same patient with **severe** preeclampsia (BP ≥ 160/110) + Proteinuria and presents to the hospital (Not yet started on labetalol). And there are to 2 options to pick between: Admit the patient **OR** Prescribe labetalol and review in a week?

→ Admit the patient.

(Severe preeclampsia needs admission and treatment even if there are no symptom).

Key 192

What is the Initial Test for Suspected Ovarian Cancer in the UK?

- **The first test to request for a woman with a suspected ovarian cancer:**

≥ 50-year-old woman (postmenopausal) + Any of the following:

√ Bloating (abdominal/ pelvic distension).

√ Early satiety or loss of appetite.

√ Pelvic or abdominal pain.

	✓ ↑ urinary urgency and/or frequency. • **The initial test** → **CA-125**. It is an ovarian cancer tumour marker (however, not 100% sensitive or specific). • **If CA-125 is elevated (≥ 35 IU/ml)** or if still high suspicion of ovarian cancer → Ultrasound of the Abdomen and Pelvis (urgent). • **If U/S is suggestive of ovarian cancer** → Refer to Gynaecology (urgent; within 2 weeks).
Key 193	**When Does Conception (Pregnancy) Normally Occur?** ✓ Around 84% of the general population will conceive naturally within 1 year if they have regular unprotected sexual intercourse. ✓ The ideal BMI for conception is 19-25 kg/m^2. ✓ It is advised to have regular sexual intercourse (every 2 to 3 days) throughout the woman's cycle. Sometimes, all that is needed for some couples is to **reassure** and advise that conception may take some time (if presented < 1 year of regular unprotected sexual intercourse + no other issues). • **Note that the use of IUS does not affect fertility.**

	√ Prolonged use of an intrauterine system (IUS) **does not** affect long-term fertility. Once the IUS is removed, fertility typically returns to the individual's baseline levels relatively quickly. The IUS works primarily by releasing hormones locally within the uterus to prevent pregnancy, and these effects are reversible upon removal. √ Studies have shown that women who have used an IUS have similar fertility rates after its removal compared to those who have not used it. The return to fertility is generally rapid, with > 80% of women being able to conceive within the first year after removal.
Key 194	**Intrahepatic Cholestasis of Pregnancy (Obstetric Cholestasis)** √ Pruritis (itching): common in palms and soles, worse at night. √ No rash. √ Usually develop in late second trimester or third trimester. • **Investigations**? → Serum **bile acid** levels **+** Liver function tests. *Bile acids are elevated (>19 micromole/L), ALT and AST are mildly elevated.* *Also, Prothrombin Time (PT) might be prolonged (due to vitamin K deficiency).* • **Management?** √ Monitor LFTs and bile acid levels. √ Topical emollients.

√ Calamine lotion and chlorpheniramine maleate (for itchiness).

√ UDCA (Ursodeoxycholic acid) (Main management for itchiness and LFTs).

√ Vitamin K daily (especially if there is prolonged prothrombin time).

Scenario:

A 27-year-old woman, 31 weeks pregnant, visits her GP with a three-week history of widespread itching. She notes that the itching worsens at night and is especially intense on her palms and soles. She has no rash. Her pregnancy has been uncomplicated, and her recent obstetric assessments and routine blood tests, including liver function tests conducted two weeks ago, were normal. Which of the following is the most appropriate investigation?

Options:

A) Renal function test.
B) Full blood count.
C) Ultrasound scan of the abdomen.
D) Urine protein creatinine ratio.
E) Serum bile acid levels.

Answer → E) Serum bile acid levels.

Reasoning:

1. **Intrahepatic Cholestasis of Pregnancy (ICP)**:

	√ The symptoms described (generalized itching, particularly on the palms and soles, worse at night) are indicative of intrahepatic cholestasis of pregnancy. √ ICP is associated with elevated serum bile acid levels, which are a key diagnostic marker. 2. **Importance of Early Diagnosis**: ○ ICP can increase risks for both the mother and fetus, including preterm delivery and fetal distress. ○ Early detection through serum bile acid levels allows for timely management and monitoring. 3. **Liver Function Tests**: ○ Although liver function tests were normal two weeks ago, bile acid levels can elevate before liver function abnormalities become apparent. • It is essential to measure serum bile acid levels as they can be elevated in this condition, even when liver enzyme levels are within normal ranges. • A serum bile acid concentration of ≥ 19 micromol/L is considered diagnostic for intrahepatic cholestasis of pregnancy.
Key 195	**Postpartum Hypertensive Disorders in Pregnancy** ◙ Women who had preeclampsia or gestational hypertension and **started on an antihypertensive medication** should continue using the same medication after giving birth.

	◙ Women who had preeclampsia or gestational hypertension and **did not take any antihypertensive medication** and continued to have BP ≥ 150/100 after giving birth should take medications based on their breastfeeding status: **√ If they are breastfeeding:** - Enalapril "1st" (Not ramipril as it is not preferred in breastfeeding). - Amlodipine or Nifedipine (especially if black or Afro-Caribbean). **√ If they are not breastfeeding** → Manage as general population (ACE inhibitors eg, enalapril, ramipril. However, if black or Afro-Caribbean → Calcium channel blockers (CCB) eg, amlodipine. **Notes**: **√** In breastfeeding, avoid Ramipril. (Enalapril is first-line, Nifedipine or amlodipine is second line). **√** In asthmatics, avoid beta-blockers eg, labetalol.
Key 196	**Vaginal Oestrogen Therapy** • In **post**-menopausal women with **recurrent** urinary tract infections (UTIs) → Vaginal oestrogen therapy can be beneficial. It can restore the normal vaginal flora and urogenital epithelium, thus reducing recurrent UTIs.

• Vaginal oestrogen therapy is particularly indicated if there is associated vaginal atrophy and/or dryness. (However, it is used in postmenopausal women with recurrent UTIs even if no vaginal atrophy or dryness).

• Vaginal oestrogen therapy can be:

√ Vaginal oestrogen **tablets** (small tablets inserted into the vagina, ie, topical).

√ Vaginal oestrogen **creams** (applied directly to the vaginal tissue).

√ Vaginal **rings** (a ring inserted into the vagina, releases oestrogen over time).

• Another option for recurrent UTIs is to give → Daily antibiotic prophylaxis.

However, in **postmenopausal** women, try **vaginal oestrogen therapy first**.

Key 197

Medical Abortion

• "Abortion pill" is the common name for using two different medicines to end a pregnancy: mifepristone and misoprostol.

• Medical Termination of Pregnancy (MTP) or medical abortion is the termination of the pregnancy under expert medical supervision. MTP is comparatively safe up to 12 weeks of pregnancy. It becomes riskier after the first trimester period of pregnancy as the foetus becomes intimately associated with the maternal tissues.

• For medical abortion at < 12 weeks:

√ It is recommended to use 200 mg **mifepristone** administered orally, followed 1–2 days later by 800 µg **misoprostol** administered vaginally, sublingually, or buccally. The minimum recommended interval between use of mifepristone and misoprostol is 24 hours.

√ When using misoprostol alone: The recommendation is to use 800 µg misoprostol administered vaginally, sublingually or buccally.

Important Notes on Medical Abortion:

◘ It is expected that 3 weeks after medical abortion, hCG can still be detected in urine. What to do in this case?

→ Repeated urine HCG in one week.

This would allow time for the hCG levels to decrease to undetectable levels in urine pregnancy test, meaning that the remaining pregnancy tissues will be expelled (ie, it takes around 3 weeks for the pregnancy tissues to be expelled after medical abortion).

◘ If the pregnancy test **remains positive**, or if the woman **develops symptoms** → Further investigations (eg, ultrasound) might be considered.

*hCG stands for **human chorionic gonadotropin**. It is a hormone produced by the **placenta** after implantation. The presence of hCG is detected in pregnancy tests, and it helps maintain the corpus luteum during the beginning of pregnancy to ensure the continued production of progesterone, which is crucial for sustaining the uterine lining and supporting early pregnancy.*

Key 198

FGM (Female Genital Mutilation)

• Female genital mutilation (FGM) comprises all procedures that involve partial or total removal of the external female genitalia, or other injury to the female genital organs for non-medical reasons.

	• The practice has no health benefits for girls and women and cause severe bleeding and problems urinating, and later cysts, infections, as well as complications in childbirth and increased risk of newborn deaths. • The practice of FGM is recognized internationally as a violation of the human rights of girls and women. It is considered a form of abuse in the UK. • If suspected case of FGM → Initiate safeguarding procedures. • **Safeguarding** is a set of measures and protocols designed to protect individuals, especially vulnerable ones, from harm, abuse, or neglect. • If the practice of FGM was done on a girl <18 YO → Report to police.
Key 199	**Suspected Preeclampsia?** (eg, > 20 weeks gestation, persistent headache, proteinuria, swelling in hands and feet, BP ≥ 140/90 mmHg -sometimes lesser but still needs assessment-). • **If there is 2+ protein or more on a dipstick test** → Refer to secondary care urgently. (eg, refer to an obstetrics unit for same-day evaluation) **even if** there is a possible UTI and the woman is normotensive. • **If there is 1+ protein on a dipstick test + No other symptoms of preeclampsia + Normotensive** → Follow up and reassess in 1 week.

Key 200

Venous Thromboembolism Prophylaxis After Surgery

A 46-year-old woman with uterine fibroid is due for elective laparoscopic hysterectomy. She is smoker and her BMI is 32 Kg/M2. What is the most appropriate management for post-operation VTE (venous thromboembolism) prophylaxis?

(Important Update on Managing VTE):

Once VTE -venous thromboembolism- is suspected or confirmed:

• If one of these two **DOACs -direct oral anticoagulants-:** **"apixaban or rivaroxaban"** is within the options and the patient is not pregnant, pick it as these 2 DOACs have become the **first line** for venous thromboembolism (**VTE**); Pulmonary embolism (**PE**), Deep vein thrombosis (**DVT**) (**Initiated once PE is suspected or confirmed**).

• What if **a different DOAC** is in the options (not apixaban or rivaroxaban), (eg, **dabigatran**)? → Pick **low molecular weight heparin LMWH eg, enoxaparin**.

LMWH can be given for 5 days and then shifted to dabigatran.

• What if the patient is **pregnant**? → pick subcutaneous **LMWH**. (Both warfarin and DOACs are contraindicated in pregnancy).

Key 201

Gestational Diabetes Mellitus (GDM)

◙ **Definition** → Any degree of glucose intolerance with onset or first recognition during pregnancy. It may resolve after pregnancy or may persist and to type 2 diabetes mellitus.

◙ When and how to screen for gestational diabetes in pregnant women?

√ Screen all women at 24-28 weeks of gestation for GDM.

√ Screening involves: fasting plasma glucose test (or) a 2-hour 75 g oral glucose tolerance test (OGTT).

√ Screen patients with any of the following:

BMI > 30 kg/m2. Previous gestational diabetes. Family history of diabetes. Previous macrosomic baby weighting ≥ 4.5 kg.

◙ The diagnostic threshold for GDM during oral glucose tolerance tests (OGTT) advised by NICE guidelines:

√ Fasting glucose level ≥ 5.6 mmol/L.

√ 2-hour glucose level ≥ 7.8 mmol/L.

◙ Management:

√ Monitor blood glucose at home at least 4 times a day (fasting, and 1 or 2 hours after meal; breakfast, lunch, dinner).

	√ If fasting glucose < 7 mmol/L → A trial of diet and exercise changes. (No advice for weight loss should be given as it is dangerous during pregnancy and can lead to preterm births. The exercise should not be heavy). If glucose target is still not met in 1-2 weeks → offer metformin. √ If fasting glucose ≥ 7 mmol/L → Immediate treatment with insulin (±) metformin (+) diet and exercise changes.
Key 202	**A woman on combined oral contraceptive pills (COCPs) but still having a heavy menstrual bleeding which has led to iron deficiency anaemia:** → Levonorgestrel-releasing intrauterine system (Mirena IUS). "**Mirena IUS** is highly effective to reduce menstrual blood loss and recommended as first-line for women with heavy menstrual bleeding who do not have identified pathology".
Key 203	**Important Note to Recall:** In a rhesus **negative** woman who has delivered a rhesus **positive** baby, it is crucial to → Administer anti-D immunoglobulin **as soon as possible** and always within **72 hours** of delivery (**even if** she had received it during pregnancy).
Key 204	**Cervical Cancer Risk Summary** The primary cause of **cervical cancer** is high-risk **human papillomavirus** (**HPV**), detected in 99% of cervical cancers. Other significant risk factors include:

- Multiple sexual partners (increasing the chance of acquiring high-risk HPV).
- Smoking.
- Immunosuppression (HIV and post-organ transplant).
- Combined oral contraceptive pills (COCP) only **slightly** increase the risk.

*Despite COCP's minimal increase in cervical cancer risk, it is **not** advised to stop using COCP solely for reducing this risk, as the protective benefits (reducing risks of ovarian and uterine cancers) outweigh the slight increase in cervical cancer risk. Condoms reduce the risk of HPV, adding a protective factor.*

If in the exam, you are asked to choose some advice for a woman with high-grade cervical dysplasia, and you have 2 options: Stop smoking or Stop COCPs

→ Pick: Stop smoking (to reduce the risk of more progression of dysplasia).

Key 205

Scenario: Advising a Woman Concerned About Fertility After IUS Removal

A 30-year-old woman visits the GP practice worried about her fertility. She had an intrauterine system (IUS) removed seven months ago after using it for four years. Since its removal, she and her partner have been actively trying to conceive without success. Her menstrual cycle returned to its regular pattern shortly after the IUS was removed, and she reports no other health issues. What is the most appropriate advice to give to this woman?

A) Recommend seeing a fertility specialist due to the length of time trying to conceive without success.

B) Suggest investigating underlying fertility issues as the main cause of her difficulty conceiving.

C) Reassure her that over 80% of couples conceive within the first year of trying.

D) Advise her that natural conception is unlikely after long-term IUS use.

E) Inform her that conception might be delayed after prolonged use of contraception, such as an IUS.

Answer → C.

In this scenario, the woman is concerned about her fertility after seven months of trying to conceive following the removal of an IUS. It's essential to provide accurate and reassuring information based on clinical evidence.

- **Recommend seeing a fertility specialist due to the length of time trying to conceive without success**: While this might be considered if the woman had been trying for a longer period (typically over a year), at seven months, it's premature to refer her to a specialist unless there are other concerning factors.
- **Suggest investigating underlying fertility issues as the main cause of her difficulty conceiving**: At this stage, it's too early to suggest that underlying fertility issues are the primary cause, especially since she has only been trying for seven months and has no other reported health issues.
- **Reassure her that over 80% of couples conceive within the first year of trying**: This is the most appropriate response. It provides reassurance and is supported by statistics, helping to alleviate unnecessary anxiety.
- **Advise her that natural conception is unlikely after long-term IUS use**: This is incorrect. There is no evidence to suggest that long-term IUS use affects natural conception once the device is removed.
- **Inform her that conception might be delayed after prolonged use of contraception, such as an IUS**: While it may take some time for cycles to

regularize after stopping some forms of contraception, IUSs typically do not cause prolonged delays in fertility.

Recommended Answer:

C) Reassure her that over 80% of couples conceive within the first year of trying.

This response is based on evidence and provides reassurance, reflecting the normal variation in time it takes for many couples to conceive.

Key 206

Postpartum (after giving birth) Vaginal Bleeding and Lochia

◙ **Normal Postpartum Bleeding (Lochia)**:

- Light pink vaginal bleeding 4 weeks postpartum is common and usually benign.
- **Lochia** is the normal discharge of blood, mucus, and tissue following childbirth, which can last for several weeks.

◙ **Clinical Assessment**:

- If the woman is clinically well with no signs of infection or retained products of conception, reassurance is appropriate.

◙ **Indications for Transvaginal Pelvic Ultrasound**:

- Necessary if there is a suspicion of retained products of conception.
- Indicated if the bleeding is heavy or associated with pain.

◙ **Indications for High Vaginal Swab (HVS)**:

- Required if there is a suspicion of infection.
- Symptoms of infection include fever, foul-smelling discharge, or pelvic pain.

◙ **Reassurance**:

- In the absence of signs of infection or heavy bleeding, simple reassurance is typically sufficient.

Key 207

Summary of Missed Pill Rules for Combined Oral Contraceptives (COCP) and Progesterone-Only Pills (POP)

Combined Oral Contraceptives (COCP):

➢ **If 1 Pill is Missed:**

- Take the missed pill as soon as possible (even if it means taking two pills in one day).
- Continue taking the rest of the pack as usual.
- No additional contraceptive protection is needed.

➢ **If 2 or More Pills are Missed:**

- Take the last missed pill as soon as possible (even if it means taking two pills in one day).
- Continue taking the rest of the pack as usual.
- Use additional contraception (e.g., condoms) for the next 7 days.
- **Consider emergency contraception if you had unprotected sex during the pill-free interval or in the first week of starting the pack (if ≥ 2 pills missed).**

Progesterone-Only Pills (POP):

❖ Traditional POPs (missed >3 hours late):

- Take the missed pill as soon as possible.
- Continue taking the remaining pills at the usual time.
- Use additional contraception (e.g., condoms) for the next 48 hours if unprotected sex occurred.

❖ Cerazette (desogestrel) (missed >12 hours late):

- Follow the same action as traditional POPs.

❖ Traditional POPs (missed <3 hours late), or Cerazette (desogestrel) (missed <12 hours late):

- Take the missed pill as soon as possible.
- Continue taking the remaining pills at the usual time.
- No additional contraceptive measures are needed.

Explanation of Terms:

- **Missed >3 Hours Late:** This means taking your traditional progesterone-only pill (POP) more than 3 hours after your regular scheduled time.
  - For example, if you normally take your pill at 8 AM, but you don't take it until after 11 AM, it is considered more than 3 hours late.
- **Missed >12 Hours Late:** This means taking your Cerazette (desogestrel) pill more than 12 hours after your regular scheduled time.
  - For example, if you normally take your pill at 8 AM, but you don't take it until after 8 PM, it is considered more than 12 hours late.
- **Pill-Free Interval:** This is the period during a contraceptive cycle when no active pills are taken. For combined oral contraceptives (COCP), this typically refers to the 7-day break between finishing one pack of active pills and starting the next pack. During this time, no hormonal pills are taken, which allows for a withdrawal bleed similar to a menstrual period. Some packs include placebo (non-hormonal) pills to help maintain the habit of taking a pill daily, but these do not contain active ingredients.

Clarified Scenarios for Testing Knowledge on Missed Pill Rules

Scenario 1: Emily is on a 21/7 COCP regimen and realizes she has missed two pills in the first week of her pack. She took the last missed pill immediately and continued her pack as usual. She had unprotected sex on the day she

missed the second pill. She is concerned about what to do next and if there is a risk of pregnancy.

Options:

A) She should stop taking the pills immediately and start a new pack.

B) She should use condoms for the next 7 days and consider emergency contraception.

C) She should take an emergency contraceptive immediately and stop taking the pills.

D) She needs no additional contraceptive methods.

E) She should skip the pill-free interval and start a new pack immediately.

Answer: B) She should use condoms for the next 7 days and consider emergency contraception.

When two or more pills are missed in the first week and unprotected sex occurred, emergency contraception should be considered along with using additional contraception for the next 7 days.

Scenario 2: Rachel is using traditional POPs and realizes she missed her pill by more than 3 hours. She took the missed pill as soon as she remembered and continued with her usual schedule. She is unsure whether she needs to take any additional precautions or if she should consider emergency contraception.

Options:

A) She should take two pills the next day to catch up.

B) She should use condoms for the next 48 hours.

C) She should stop taking the pills and switch to another form of contraception.

D) She does not need to take any additional precautions.

E) She should take an emergency contraceptive if she had unprotected sex after missing the pill.

Answer: B) She should use condoms for the next 48 hours.

For traditional POPs, if a pill is missed by more than 3 hours, additional contraception is needed for the next 48 hours. Emergency contraception is only needed if unprotected sex occurred after missing the pill and within the 48-hour window after restarting.

Scenario 3: Sarah is on Cerazette (desogestrel) and realizes she missed her pill by 14 hours. She took the missed pill as soon as she remembered. She has not had unprotected sex in the last few days and is worried about the implications of missing the pill by such a long time.

Options:

A) She should take the missed pill now, abstain from unprotected intercourse for 48 hours, and no emergency contraception is required.

B) She should use condoms for the next 7 days.

C) She should take two pills the next day to catch up.

D) She should stop taking Cerazette and switch to another form of contraception.

E) She needs to take an emergency contraceptive immediately.

Answer: A) She should take the missed pill now, abstain from unprotected intercourse for 48 hours, and no emergency contraception is required.

For Cerazette, if missed by more than 12 hours, take the missed pill immediately, abstain from unprotected sex for 48 hours, and no emergency contraception is needed unless unprotected sex occurred after missing the pill.

Scenario 4: Laura is using traditional POPs and missed her pill by 4 hours. She hasn't had any unprotected sex in the last week. She is concerned about what steps she should take next to ensure she is protected from pregnancy.

Options:

A) Take the missed pill immediately and use additional contraception for the next 48 hours.

B) Skip the missed pill and continue with the next pill at the usual time.

C) Take an emergency contraceptive pill.

D) Take two pills the next day to catch up.

E) Switch to a different form of contraception.

Answer: A) Take the missed pill immediately and use additional contraception for the next 48 hours.

For traditional POPs missed by more than 3 hours, take the missed pill immediately and use condoms for 48 hours.

Scenario 5: Anna is on a 21/7 COCP regimen and missed one pill during the third week of her pack. She took the missed pill as soon as she remembered and continued her pack as usual. She is worried if missing one pill so close to the pill-free interval affects her contraceptive protection.

Options:

A) She should stop taking the pills and start a new pack.

B) She should use condoms for the next 7 days.

C) She should take an emergency contraceptive immediately.

D) She needs no additional contraceptive methods.

E) She should skip the pill-free interval and start a new pack immediately.

Answer: D) She needs no additional contraceptive methods.

Missing one pill in the third week does not require additional contraception. Continue with the pack as usual.

Scenario 6: Beth is using traditional POPs and had unprotected sex yesterday. She missed her pill by 5 hours today. She is unsure about the risk of pregnancy and what steps she should take immediately.

Options:

A) Take the missed pill immediately, use condoms for the next 48 hours, and take an emergency contraceptive.

B) Skip the missed pill and continue with the next pill at the usual time.

C) Take two pills the next day to catch up.

D) Use condoms for the next 7 days and take an emergency contraceptive.

E) Continue taking the pills as usual with no additional precautions.

Answer: A) Take the missed pill immediately, use condoms for the next 48 hours, and take an emergency contraceptive.

If unprotected sex occurred after missing a traditional POP by more than 3 hours, emergency contraception is advised along with additional contraception for 48 hours.

Scenario 7: A 29-year-old woman attends your clinic seeking advice after she missed taking her progesterone-only pill (POP), which she usually takes at 8 AM. It is now 10 PM, and she realizes that she forgot to take her pill this morning. She reports no episodes of unprotected sexual intercourse (UPSI) since her last pill. What is the most appropriate advice to give this woman?

Options:

A) Take the missed pill now, use additional contraceptive measures such as condoms for the next 7 days.

B) Take the missed pill now and abstain from unprotected sexual intercourse for the next 48 hours; no emergency contraception is required.

C) Do not take the missed pill; instead, use condoms for the next 7 days.

D) Take the missed pill immediately and continue taking the next pills as scheduled; no further action is required.

E) Advice on the need for emergency contraception.

Answer: B) Take the missed pill now and abstain from unprotected sexual intercourse for the next 48 hours; no emergency contraception is required.

Explanation: Option B is better than option D because it provides the necessary advice to use additional contraception for the next 48 hours, which is important to prevent pregnancy after a missed pill. Option D, while correct in advising to take the missed pill immediately and continue with the next pills as scheduled, does not emphasize the need for additional contraceptive measures during the next 48 hours, which is crucial for maintaining contraceptive efficacy.

Key 208

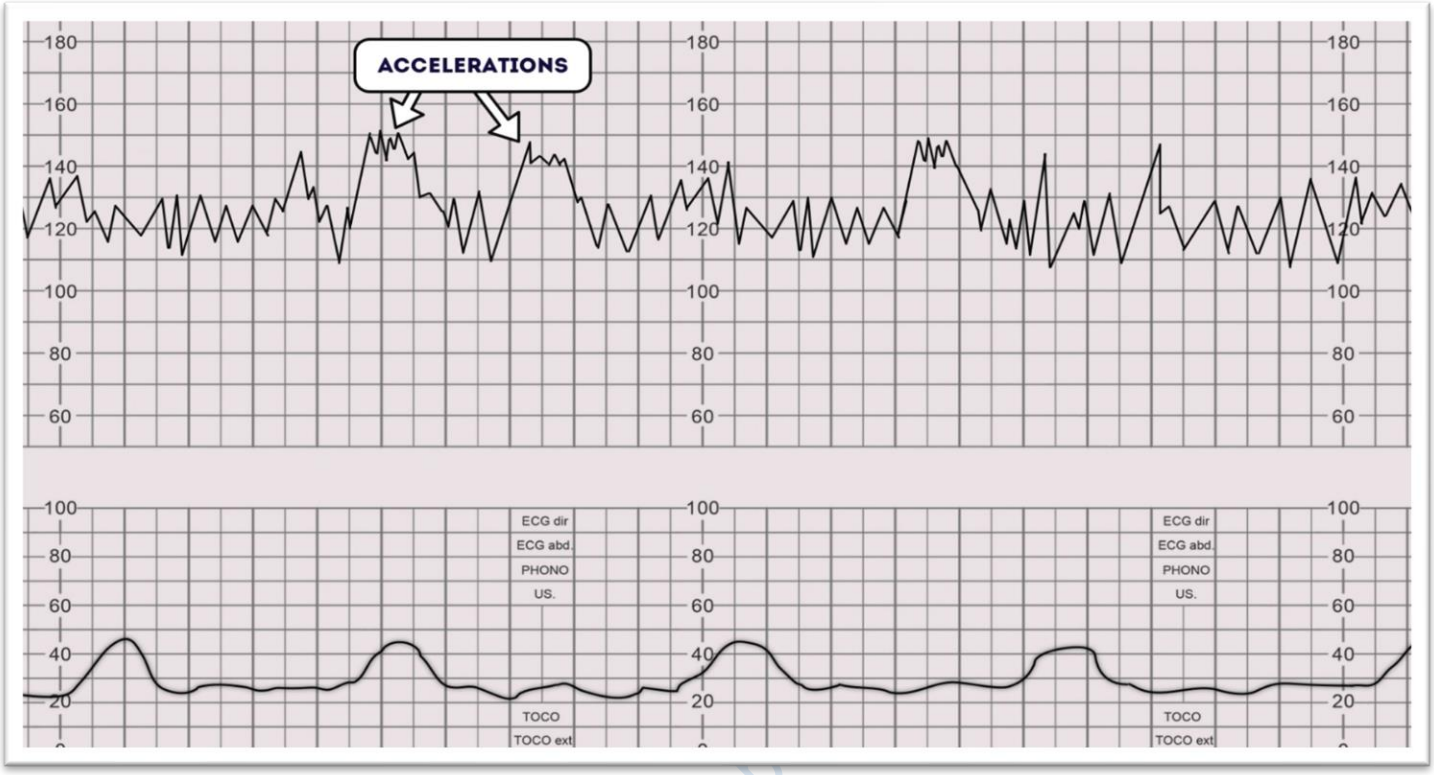
Management of Recurrent Late Decelerations in Labour

• Recurrent late decelerations on cardiotocography (CTG) during labour indicate potential uteroplacental insufficiency, where the fetus may not be receiving adequate oxygen.

• The initial management step is to → reposition the woman onto her left side to improve blood flow and oxygen delivery to the fetus by relieving pressure on the inferior vena cava. This non-invasive intervention should be performed **immediately** while continuing to monitor the CTG for changes.

• **If repositioning does not improve the CTG trace**, more actions may include administering oxygen, increasing intravenous fluids, or considering more invasive measures such as fetal blood sampling or an emergency caesarean

	section if the condition persists or worsens. Immediate and appropriate interventions are crucial to ensuring fetal well-being during labour.
Key 209	**Difference Between CTG Accelerations and Decelerations** **Cardiotocography (CTG)** is used to monitor the fetal heart rate and uterine contractions during labour. Understanding accelerations and decelerations helps in assessing fetal well-being. **Accelerations:** • **Definition**: Transient increases in fetal heart rate. • **Criteria**: Increase of at least 15 bpm above baseline for at least 15 seconds. • **Significance**: Reassuring, indicating good fetal oxygenation and response to stimuli. Accelerations are typically a sign of fetal well-being. • **Management**: No intervention needed; continue standard monitoring.



Decelerations:

◙ Early Decelerations:

- **Definition**: Gradual decreases in fetal heart rate, simultaneous with contractions.
- **Significance**: Typically benign and associated with head compression during contractions.
- **Management**: Observation and reassurance; no specific intervention required.

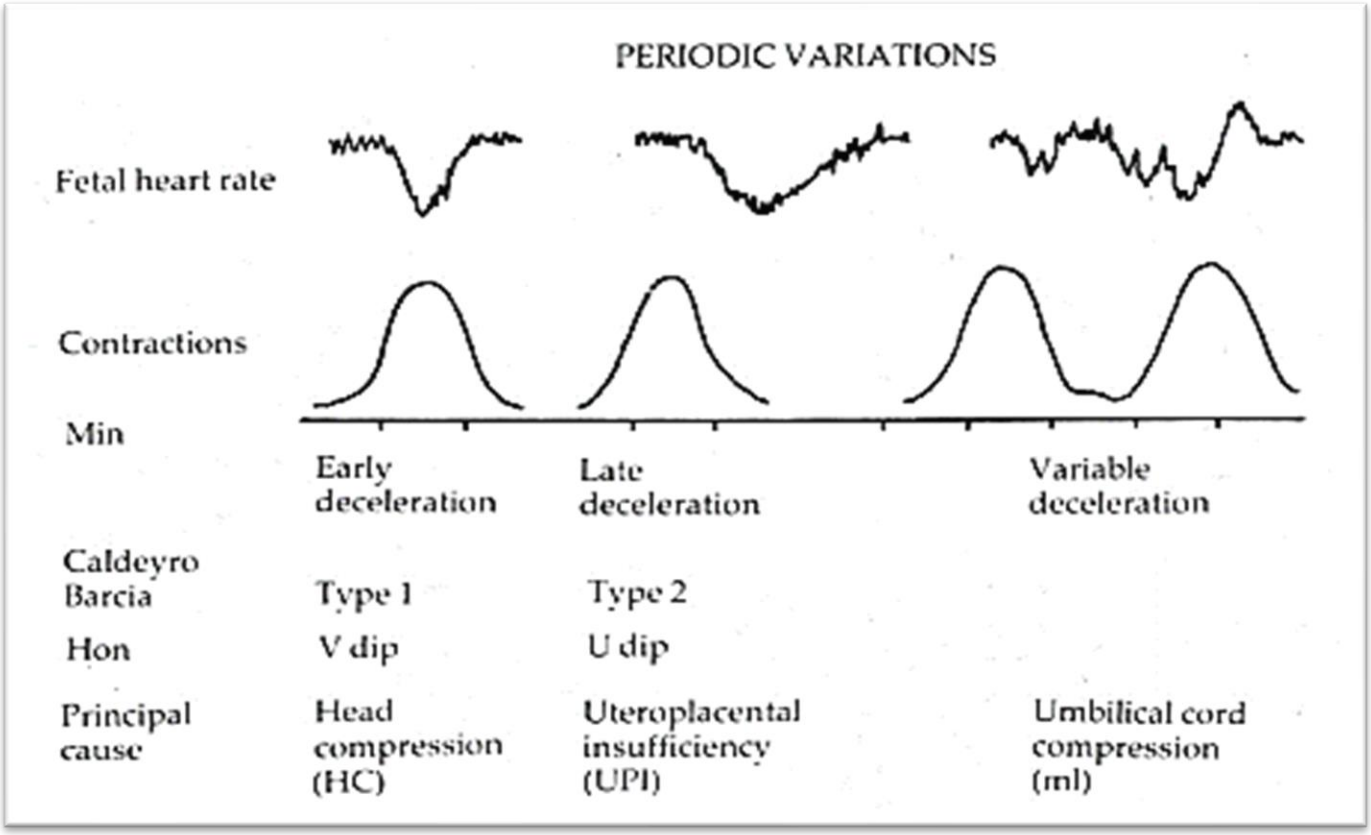
◙ Variable Decelerations:

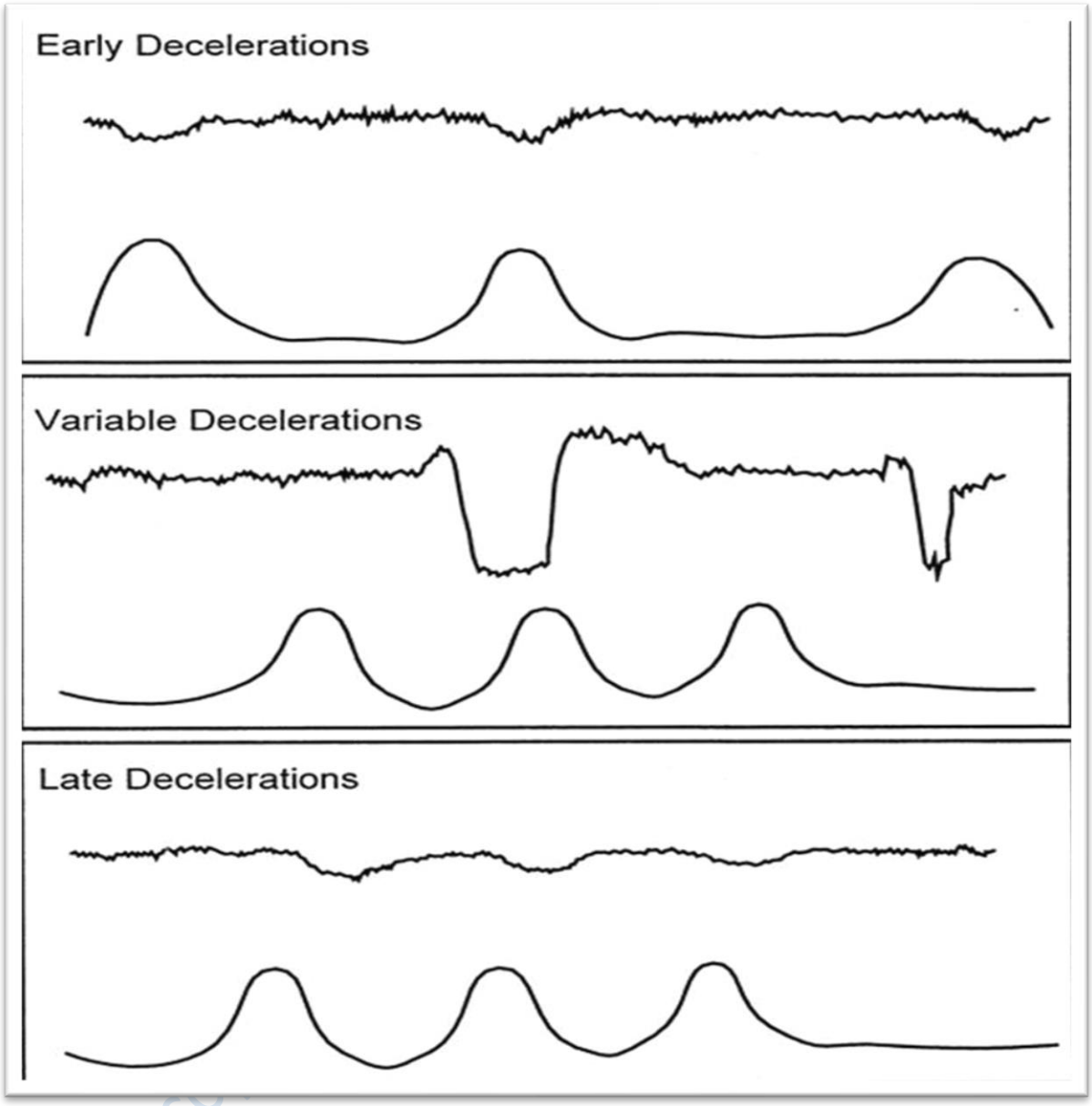
- **Definition**: Abrupt decreases in fetal heart rate, varying with contractions. Timing: Vary in timing with contractions. Shape: Abrupt decrease and return to baseline, often U or V-shaped.
- **Significance**: May indicate umbilical cord compression. Repetitive or severe variable decelerations can be concerning.
- **Management**:
  - Reposition mother (e.g., left lateral). "Initial management √".
  - Amnioinfusion: Consider amnioinfusion (infusing sterile fluid into the amniotic sac) if there is evidence of severe variable decelerations, especially with oligohydramnios (low amniotic fluid).
  - Reduce Uterine Activity: If contractions are overly frequent or strong, consider reducing or discontinuing oxytocin if it is being administered, or by giving tocolytics such as nifedipine, terbutaline, or magnesium sulfate.
  - Provide maternal oxygen.
  - Monitor closely and reassess frequently.

◙ Late Decelerations:

- **Definition**: Gradual decreases in fetal heart rate, beginning after the peak of contractions.
- **Significance**: Often indicate uteroplacental insufficiency and can be a sign of fetal hypoxia. Recurrent late decelerations are more concerning and may require intervention.
- **Management**:
  - Reposition mother (eg, onto her left side) to improve blood flow. "**Initial**".

- Administer maternal oxygen.
- Increase IV fluids.
- Reduce or stop oxytocin if it is in use.
- Correct maternal hypotension if it is found.
- Expedite (ie, accelerate, hasten) delivery (eg, by caesarean section) if the late decelerations persisted despite the above conservative interventions.





Summary:

- **Accelerations**: Reassuring, no action needed.
- **Early Decelerations**: Usually benign, continue observation.
- **Variable Decelerations**: Reposition, consider amnioinfusion, manage uterine activity, provide oxygen, and monitor closely.

- **Late Decelerations**: Reposition, provide oxygen and fluids, manage uterine activity, correct hypotension, and expedite delivery if necessary.

Key 210

CTG Classifications

Cardiotocography (CTG) is utilized during labour to monitor fetal well-being by recording the fetal heart rate (FHR) and uterine contractions. CTG tracings are categorized based on the baseline heart rate, variability, and decelerations. These classifications help identify normal, non-reassuring, and abnormal patterns, which guide the management of labour.

Features (Patterns): Normal (Reassuring)/ Non-Reassuring/ Abnormal

◙ Baseline Heart Rate (bpm):

- **Normal/Reassuring:** 110-160
- **Non-Reassuring:** 100-109 or 161-180
- **Abnormal:** Greater than 180 or less than 100

◙ Variability (bpm):

- **Normal/Reassuring:** 5-25
- **Non-Reassuring:** Less than 5 for 30 to 50 minutes OR more than 25 for 15 to 25 minutes
- **Abnormal:** Less than 5 for over 50 minutes OR more than 25 for more than 25 minutes

◙ Decelerations (bpm):

- **Normal/Reassuring:** None or early decelerations
- **Non-Reassuring:** Late decelerations in over 50% of contractions for less than 30 minutes without vaginal bleeding
- **Abnormal:** Late decelerations for 30 minutes or more (or less if there is vaginal bleeding) OR acute bradycardia, or a single prolonged deceleration lasting 3 minutes or more

Management According to CTG Interpretation:

Normal:

- **Definition:** All features are reassuring.
- **Management:** Maintain current management.

Suspicious:

- **Definition:** One non-reassuring feature.
- **Management:**
  - Address any underlying issues such as low blood pressure or excessive uterine contractions.
  - Implement conservative measures:
    - Change to a different position (avoid lying flat).
    - Provide intravenous fluids.

- Decrease contraction frequency by reducing oxytocin use if applicable or administering a tocolytic.

Pathological:

- **Definition:** One abnormal feature **OR** two non-reassuring features.
- **Management:**
  - Initiate conservative measures mentioned above.
  - Consider expediting the birth if necessary (eg, by caesarean section).

Key 211

Vaginal Spotting in Women Using COCP with Cervical Ectropion

When a woman using a combined oral contraceptive pill (COCP) experiences unexpected spotting, particularly in the presence of cervical ectropion, it is often a common and benign side effect. This condition, known as cervical ectropion or cervical erosion, can cause contact bleeding, which is frequently associated with hormonal contraception.

Management:

1. **Reassurance**:
   - Spotting and breakthrough bleeding are common within the first few months of starting COCP.
   - Cervical ectropion, detected during an examination, is generally benign and related to hormonal changes.

2. **No Immediate Intervention**:

- It is appropriate to reassure the woman that no immediate intervention is necessary.
- This approach avoids unnecessary treatments and allows time for the body to adjust to the COCP.

3. **Monitoring**:

- Continued observation is important. If the spotting persists beyond a few more months or other symptoms develop, further evaluation may be warranted.

In summary, the preferred management for a woman with **COCP-related spotting** and **cervical ectropion** is to provide **reassurance** and allow time for adaptation, aligning with UK medical guidelines.

Cervical Ectropion: Overview and Management

Cervical ectropion, where glandular cells (columnar epithelium) are present on the cervix's outer surface, is common in women using hormonal contraception like the combined oral contraceptive pill (COCP).

This benign condition can lead to spotting or post-coital bleeding due to the fragility of the ectropion area but is typically harmless. Reassurance is often sufficient if the cervical smear history is up to date and normal.

Management Strategies:

1. **Reassurance**:
   - For most women, reassurance is adequate, especially if cervical smears are normal and up to date.
   - Spotting is a common side effect when starting COCP and usually resolves within the first few months as the body adjusts.
2. **Colposcopy**:
   - Consider if spotting is troublesome or impacts quality of life.

Colposcopy would be necessary if the spotting persists, is particularly troublesome, or if there are any concerns about abnormal cervical smear results or unexplained bleeding.

   - During colposcopy, treatments like cautery with silver nitrate, diathermy, or cryotherapy can be used to cauterise the ectropion area, helping reduce spotting.
3. **Cryotherapy**:
   - Only recommended if symptoms are very bothersome.
4. **Changing Contraception**:
   - Switching to a progestogen-only pill (POP) might help reduce ectropion and associated symptoms, but this is generally reserved for persistent or problematic cases.

In summary, cervical ectropion is usually benign and can be managed with reassurance, especially if smears are normal. Further intervention is reserved for persistent or troublesome symptoms.

Remember:

Cervical Smear (Cervical Screening) Schedule in the UK:

The NHS Cervical Screening Programme in the UK recommends the following schedule for cervical smear tests:

- **Age 25-49** → Every 3 years.
- **Age 50-64** → Every 5 years.
- **Age 65 and over** → Only if one of the last three tests was abnormal, or if there hasn't been a test since age 50.

Key 212

No Cardiac Activity at 7 Weeks: What's Next?

Scenario:

A 29-year-old woman presents to the Early Pregnancy Unit with mild abdominal discomfort and occasional spotting. She estimates her pregnancy to be around 7 weeks based on her last menstrual period, confirmed by a positive urine beta-hCG test. An ultrasound reveals a crown-rump length (CRL) of 6 mm but no detectable fetal cardiac activity. The cervix is closed, and the patient reports that her symptoms have improved. What is the most appropriate next step in her management?

Options:

A) Schedule a repeat scan in one week.

B) Administer misoprostol to induce miscarriage.

C) Perform an immediate dilation and curettage.

D) Request a serum beta-hCG test to check hormone levels.

E) Perform an urgent surgical evacuation.

Answer:

The correct answer is → **A) Schedule a repeat scan in one week.**

Explanation:

- Cardiac activity typically appears around **6 weeks** of gestation when the **crown-rump length (CRL) reaches about 5 mm**. However, in some cases, it may take until **7 weeks** or a slightly larger CRL (up to 7 mm) for cardiac activity to be detected. In this scenario, the CRL is 6 mm, which is at the borderline where cardiac activity is expected but not yet confirmed.

- According to current guidelines, if the CRL is less than 7 mm and no cardiac activity is detected, it is recommended to schedule a **repeat scan after at least 7 days** to confirm the diagnosis. This approach ensures that the pregnancy is given time to progress, and the presence of cardiac activity can be reassessed before making any further decisions.
- **Administering misoprostol** or opting for **immediate surgical evacuation** is not appropriate at this stage because there is no confirmation that the pregnancy is non-viable. Proceeding with these options without follow-up would risk intervening in a potentially viable pregnancy.
- While a **serum beta-hCG** test might offer additional information about the pregnancy's progress, it is less reliable for determining viability at this stage compared to ultrasound findings. Serial beta-hCG measurements (every 48 hours) can help assess pregnancy progression, but a single reading would not provide enough evidence for diagnosis. Since the pregnancy is confirmed on ultrasound, a follow-up scan is more definitive.

Therefore, the most appropriate next step is to **schedule a repeat scan** in one week to ensure that the diagnosis is accurate and avoid unnecessary interventions. This conservative approach allows time for the possibility of detecting cardiac activity at the next scan.

Key 213

Severe Nausea & Vomiting in Early Pregnancy: Diagnostic Approach

A 34-year-old woman presents to the maternity unit with severe nausea and vomiting for the past 3 weeks. She has been unable to keep food down and has lost weight. She confirmed her pregnancy at home 7 weeks ago with a positive pregnancy test. Her last menstrual period was 9 weeks ago. She denies fever or abdominal pain, but her vomiting has persisted despite taking anti-nausea medication prescribed by her GP. On examination, she appears dehydrated but is haemodynamically stable. Her uterus is palpated to be larger than expected for 9 weeks of gestation. What is the most appropriate investigation to confirm the diagnosis?

Options:

A) Serum beta-hCG test.

B) Pelvic ultrasound scan.

C) Thyroid function test.

D) Serum amylase.

E) High vaginal swab.

Answer:

The correct answer is → **B) Pelvic ultrasound scan.**

Explanation:

- The patient's symptoms of **severe nausea and vomiting**, combined with a **uterus larger than expected for gestational age**, raise the suspicion of a **molar pregnancy** (gestational trophoblastic disease) or **multiple pregnancy**. These conditions often cause **excessively elevated beta-hCG levels**, which are associated with more severe nausea and vomiting (**hyperemesis gravidarum**).
- The most definitive investigation to confirm a **molar pregnancy** or multiple gestation is a **pelvic ultrasound scan**, which will allow visualisation of the uterus to detect any abnormalities, such as the presence of a molar mass or multiple gestational sacs.
- Although **serum beta-hCG** levels are typically elevated in molar pregnancies, they are not specific enough to establish the diagnosis without imaging. A pelvic ultrasound provides a direct visual assessment.
- **Thyroid function tests** can be useful in cases of hyperemesis gravidarum, as high levels of beta-hCG can stimulate the thyroid gland, leading to **thyrotoxicosis**. However, this is not the primary investigation to confirm the diagnosis in this case.
- **Serum amylase** is used to diagnose pancreatitis, which does not align with this patient's presentation.

	• A **high vaginal swab** is typically used to assess infections, which is not indicated here, as the patient does not report any symptoms of infection (e.g., fever, abnormal discharge). Therefore, the **pelvic ultrasound** is the most appropriate investigation to confirm the diagnosis, as it will provide crucial information regarding the cause of the patient's symptoms and the size of the uterus relative to the gestational age.
Key 214	**Lactational Amenorrhoea (Key Points):** • **Lactational amenorrhoea** is a common physiological response to **exclusive breastfeeding**. • **Prolactin**, the hormone responsible for milk production, also **suppresses the menstrual cycle** by inhibiting the hormones that regulate menstruation. • This suppression can lead to the **absence of menstrual periods** (amenorrhoea) for an extended period, especially while the mother continues to breastfeed frequently. • This condition is **normal** and does not require investigation or intervention unless there are other concerning symptoms.

- **Reassurance** is the most appropriate management step for women concerned about the absence of menstruation while breastfeeding.

Quick Note to Remember on A Previous Topic:

→ **"Condoms" are protective against HPV and thus cervical cancer.**

Key 215

Risk Factors for Ectopic Pregnancy (Key Points):

- **Previous Chlamydia Infection**: This poses a **greater overall risk** of ectopic pregnancy **compared to an IUD**. Chlamydia can lead to **pelvic inflammatory disease (PID)**, which causes scarring of the fallopian tubes. This scarring interferes with the proper movement of the fertilised egg to the uterus, significantly increasing the risk of ectopic pregnancy.
- **Intrauterine Device (IUD)**: While the **overall risk of pregnancy** is lower due to the high effectiveness of IUDs in preventing pregnancy, if a pregnancy does occur with an IUD in place, it is **more likely to be ectopic** compared to women

	not using contraception. However, the overall risk of ectopic pregnancy is still **lower in IUD users** compared to those not using any contraception. • **Fibroids**: Although fibroids may affect implantation within the uterus, they are not a major independent risk factor for ectopic pregnancy. • **Body Mass Index (BMI)**: Elevated BMI does not significantly increase the risk of ectopic pregnancy. • **Previous Miscarriage**: A past miscarriage, on its own, does not notably increase the risk of ectopic pregnancy unless complications such as infections (e.g., PID) were involved.
Key 216	**VTE Prophylaxis for Hysterectomy (Key Points):** • **Low Molecular Weight Heparin (LMWH)**, such as **enoxaparin**, is recommended for **venous thromboembolism (VTE) prophylaxis** in patients undergoing **abdominal surgeries**, such as hysterectomies. • **DOACs** (Direct Oral Anticoagulants), including **dabigatran** and **rivaroxaban**, are used for **VTE treatment and prevention** in various settings. However, they are **not currently recommended** for VTE prophylaxis in abdominal surgeries. **DOACs** are more commonly used for orthopaedic procedures (e.g., total hip/knee replacement).

- **Warfarin**, a vitamin K antagonist, is primarily used for **long-term anticoagulation therapy**. It requires frequent monitoring and dose adjustments, making it unsuitable for immediate postoperative VTE prophylaxis.
- **VTE prophylaxis** is particularly important in patients undergoing major surgeries, especially if they have additional risk factors such as **obesity** or **smoking**.

Additional Note to Remember:

In the case of suspected **pulmonary embolism**, a therapeutic dose of **DOACs** is typically started immediately. After confirming a diagnosis of pulmonary embolism (by *CTPA*; CT Pulmonary Angiography), the therapeutic dose of DOACs is continued for treatment. However, remember that in **pregnant** women, pick **LMWH**. This is because DOACs are contraindicated in pregnancy.